

**Final Test Report
for**

United Taconite Line 2 Pellet Induration Furnace 2A ICR

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in this test report are true, accurate, and complete.

Permitted Facility Representative / Date

Name:
Title:
Company:
Sign Date:

I have reviewed all testing details and results in this test report and hereby certify that the test report is authentic and accurate.

Testing Company Representative / Date

Name:
Title:
Company:
Sign Date:

United Taconite Line 2 Pellet Induration Furnace 2A ICR

Facility Information:

| | | |
|---------------------|-----------------------------------|--------|
| United Taconite LLC | | |
| 8470 Townline Road | | |
| | | |
| Forbes | MN | 55738- |
| Contact: | Candice Maxwell | |
| Phone: | (218) 744-7849 | |
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| Email: | candice.maxwell@clevelandcliffs.c | |

Testing Company:

| | | |
|-------------------------|---------------------|--------|
| Barr Engineering | | |
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| | | |
|---------------------------------|--------------------------|----------------------------|
| Industry/SCC/NAIS 212210 | AFS #: 2713700113 | FRS #: 110070834615 |
|---------------------------------|--------------------------|----------------------------|

Air Permit Number:

| |
|--------------|
| 13700113-102 |
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Permitted Source ID/Name:

| | |
|---------|--------------------------|
| EQUI 47 | Line 2 Pellet Induration |
|---------|--------------------------|

Permitted Maximum Process Rate: Max. Normal Operation Process Rate: Target Process Test Rate

| | | |
|-----|-----|----------|
| N/A | N/A | 500 LTPH |
|-----|-----|----------|

| | |
|------------------------------------|---------------------------------------------------------------------------------------------------------------|
| SCC / Description: 30302350 | Industrial Processes - Primary Metal Production - Taconite Iron Ore Processing - Grate/Kiln Furnace Discharge |
|------------------------------------|---------------------------------------------------------------------------------------------------------------|

The following state and federal regulations that apply to the proposed testing:

Description of the source (including control equipment). Please see the attachments for source or process flow diagram:

The Line 2 Pellet Induration furnace (EU042/EQUI 47) is an Allis Chalmers rotary kiln, which is 130 feet in length and 21'6" in diameter. The heated gasses from the kiln are drawn through the preheat grate zones to dry greenballs and begin the pellet induration process prior to entering the kiln. The off-gasses from the induration process are controlled with dual Ducon veturi scrubbers (Size 825/222 Type VVO) (CE050/TREA 89, CE049/TREA 90), and are then exhausted through parallel stacks 2A Pellet Induration (SV048/STRU 16) and 2B Pellet Induration (SV049/STRU 15), which are both drawn from the same location within the process.

Sampling Location Information:

| Location | Round Duct Diam. | Rect. Duct Length /Width | | Equiv. Diam | DownStream Distance from Disturbance (Distance B): | UpStream Distance from Disturbance: | Number of Traverse Ports | Min.Travers Points |
|-----------------------------------------|------------------|--------------------------|--|-------------|----------------------------------------------------|-------------------------------------|--------------------------|--------------------|
| EU042/EQUI4 7 SV048/STRU1 6 CG | 147 | | | | 1161 | 312 | 4 | 12 |
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|-----------------------------------------|-----|--|--|--|------|-----|---|----|
| EU042/EQUI4 7 SV048/STRU1 6 NG | 147 | | | | 1161 | 312 | 4 | 12 |
| | | | | | | | | |

Test Parameter Information:

| Location | Target Parameter | Test Method | Number of Test Runs | Test Run Duration | Comments |
|-----------------------------------------|------------------------|-------------|---------------------|-------------------|---------------------------------|
| EU042/EQUI4 7 SV048/STRU1 6 CG | Carbon Monoxide | Method 10 | 3 | 168 | Simultaneous with each test run |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Hydrogen Chloride | Method 26A | 3 | 120 | >2 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Hydrogen Fluoride | Method 26A | 3 | 120 | >2 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Filterable Particulate | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Antimony | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Antimony Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Antimony Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Arsenic | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Arsenic Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Arsenic Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Beryllium | Method 29 | 3 | 168 | >3 dscm |
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|-----------------------------------------|----------------------|-----------|---|-----|---------|
| EU042/EQUI4 7 SV048/STRU1 6 CG | Beryllium Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Beryllium Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Cadmium | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Cadmium Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Cadmium Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Chromium | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Chromium Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Chromium Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Cobalt | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Cobalt Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Cobalt Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Lead | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Lead Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Lead Front Half | Method 29 | 3 | 168 | >3 dscm |
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|-----------------------------------------|--------------------------------------------|-----------|---|-----|---------|
| EU042/EQUI4 7 SV048/STRU1 6 CG | Manganese | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Manganese Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Manganese Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Mercury | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Mercury Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Mercury Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Nickel | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Nickel Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Nickel Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Phosphorus (yellow or white) | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Phosphorus (yellow or white) Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Phosphorus (yellow or white) Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Selenium | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Selenium Back Half | Method 29 | 3 | 168 | >3 dscm |
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|-----------------------------------------|------------------------|---------------|---|-----|---------------------------------|
| EU042/EQUI4 7 SV048/STRU1 6 CG | Selenium Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Carbon Dioxide | Method 3A CO2 | 3 | 168 | Simultaneous with each test run |
| EU042/EQUI4 7 SV048/STRU1 6 CG | Oxygen | Method 3A O2 | 3 | 168 | Simultaneous with each test run |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Carbon Monoxide | Method 10 | 3 | 168 | Simultaneous with each test run |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Hydrogen Fluoride | Method 26A | 3 | 120 | >2 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Hydrogen Chloride | Method 26A | 3 | 120 | >2 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Filterable Particulate | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Antimony | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Antimony Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Antimony Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Arsenic | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Arsenic Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Arsenic Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Beryllium | Method 29 | 3 | 168 | >3 dscm |
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|-----------------------------------------|----------------------|-----------|---|-----|---------|
| EU042/EQUI4 7 SV048/STRU1 6 NG | Beryllium Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Beryllium Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Cadmium | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Cadmium Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Cadmium Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Chromium | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Chromium Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Chromium Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Cobalt | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Cobalt Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Cobalt Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Lead | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Lead Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Lead Front Half | Method 29 | 3 | 168 | >3 dscm |
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|-----------------------------------------|--------------------------------------------|-----------|---|-----|---------|
| EU042/EQUI4 7 SV048/STRU1 6 NG | Manganese | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Manganese Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Manganese Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Mercury | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Mercury Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Mercury Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Nickel | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Nickel Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Nickel Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Phosphorus (yellow or white) | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Phosphorus (yellow or white) Back Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Phosphorus (yellow or white) Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Selenium | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Selenium Back Half | Method 29 | 3 | 168 | >3 dscm |
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|-----------------------------------------|---------------------|---------------|---|-----|---------------------------------|
| EU042/EQUI4 7 SV048/STRU1 6 NG | Selenium Front Half | Method 29 | 3 | 168 | >3 dscm |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Oxygen | Method 3A O2 | 3 | 168 | Simultaneous with each test run |
| EU042/EQUI4 7 SV048/STRU1 6 NG | Carbon Dioxide | Method 3A CO2 | 3 | 168 | Simultaneous with each test run |

The following describes any modifications and/or deviations to the applicable test methods. If alternative methods were requested, see the attachments for documentation of request AND approval, including dates.

EPA Method 26A was modified to eliminate sodium hydroxide impingers (not needed as looking for HF and HCL).

Alternative post test meter calibration procedure was performed after each condition. Documentation is included in Post-Test Meter Boxes/DGMs Calibrations attachments.

At the request of EPA, a fourth 0.1N sulfuric acid impinger was added to the train to determine HF breakthrough.

The results for phosphorus are corrected for the full amount reported in the corresponding sample blanks due to substantial contamination confirmed by subsequent sample media analysis. The front half blank contained 137 µg, which is used for the blank correction. Subsequent analysis of two additional filters from the same lot confirmed the presence of phosphorus at even higher levels (162 and 159 µg/filter, respectively). The back half 5% nitric acid and 10% hydrogen peroxide reagent blank contained 17.6 total µg, which is used for the blank correction. Subsequent analysis of a second reagent made using the same stock materials confirmed the presence of phosphorus at a similar level (18.4 total µg). As a result, Cliffs conservatively corrected for 137 µg in the front half sample blank and 17.6 µg in the back half reagent blank.

United Taconite Line 2 Pellet Induration Furnace 2A ICR

Sampling / Stack Data Results Summary

Location EU042/EQUI47 SV048/STRU16 CG - Method 10

| | | | | <u>Average</u> |
|-----------------------------------------|-------------|------------|-------------|----------------|
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/15/2022 | 3/15/2022 | 3/16/2022 | |
| Run Start Time | 8:30:00 AM | 2:30:00 PM | 11:41:00 AM | |
| Run Finish Time | 11:45:00 AM | 5:19:00 PM | 2:34:00 PM | |
| Carbon Dioxide, % | 2.3353 | 2.2052 | 2.0525 | 2.198 |
| Oxygen, % | 17.4452 | 17.6475 | 17.5955 | 17.563 |
| Dry Volumetric Flow Rate, dry scfm | 316961.7 | 295693.3 | 312318 | 308,324.333 |
| F-Factor, dscfm/MMBtu @ %O ₂ | 0 | 0 | 0 | 0.000 |
| Moisture, % | 13.6169 | 13.8516 | 13.9219 | 13.797 |
| Fuel Type | | | | |
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |

Location EU042/EQUI47 SV048/STRU16 CG - Method 26A

| | | | | <u>Average</u> |
|-------------------------------------------------------------|-------------|------------|-------------|----------------|
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/15/2022 | 3/15/2022 | 3/16/2022 | |
| Run Start Time | 8:31:00 AM | 2:25:00 PM | 11:41:00 AM | |
| Run Finish Time | 10:55:00 AM | 4:37:00 PM | 1:49:00 PM | |
| Net Run Time, minutes | 120 | 120 | 120 | |
| Dry Gas Meter Volume Sampled, dscf | 79.868 | 79.930 | 81.430 | 80.409 |
| Moisture Content of Stack Gas, % | 13.8769 | 13.9594 | 15.0488 | 14.295 |
| Moisture Saturation at Stack Gas Temperature, % | 21.08 | 21.95 | 21.64 | 21.557 |
| Carbon Dioxide, % | 2.3353 | 2.2052 | 2.0525 | 2.198 |
| Oxygen, % | 17.4452 | 17.6475 | 17.5955 | 17.563 |
| Average Stack Gas Temperature, °F | 140.96 | 142.54 | 141.58 | 141.693 |
| Square Root of Average Velocity, inches of H ₂ O | 0.9419 | 0.9569 | 0.9653 | 0.955 |
| Dry Volumetric Flow Rate, dry scfm | 301,821.9 | 306,039.2 | 304,240.4 | 304,033.833 |
| Actual Wet Volumetric Flue Gas Flow Rate, acfm | 418,214.4 | 425,568.9 | 432,357.6 | 425,380.300 |
| Percent Isokinetic of Sampling Rate, % | 101.2 | 99.9 | 102.4 | 101.167 |
| F-Factor, dscfm/MMBtu @ %O ₂ | 0 | 0 | 0 | 0.000 |
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |

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Location EU042/EQUI47 SV048/STRU16 CG - Method 29

| | | | | <u>Average</u> |
|-------------------------------------------------|-------------|------------|-------------|-----------------------|
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/15/2022 | 3/15/2022 | 3/16/2022 | |
| Run Start Time | 8:30:00 AM | 2:23:00 PM | 11:41:00 AM | |
| Run Finish Time | 11:45:00 AM | 5:19:00 PM | 2:34:00 PM | |
| Net Run Time, minutes | 168 | 168 | 168 | |
| Dry Gas Meter Volume Sampled, dscf | 118.699 | 109.685 | 117.908 | 115.431 |
| Moisture Content of Stack Gas, % | 13.6169 | 13.8516 | 13.9219 | 13.797 |
| Moisture Saturation at Stack Gas Temperature, % | 22.04 | 22.00 | 22.14 | 22.060 |
| Carbon Dioxide, % | 2.3353 | 2.2052 | 2.0525 | 2.198 |
| Oxygen, % | 17.4452 | 17.6475 | 17.5955 | 17.563 |
| Average Stack Gas Temperature, °F | 142.71 | 142.63 | 142.46 | 142.600 |
| Square Root of Average Velocity, inches of H2O | 0.9882 | 0.9238 | 0.9810 | 0.964 |
| Dry Volumetric Flow Rate, dry scfm | 316,961.7 | 295,693.3 | 312,318.0 | 308,324.333 |
| Actual Wet Volumetric Flue Gas Flow Rate, acfm | 439,146.4 | 410,718.5 | 438,651.3 | 429,505.400 |
| Percent Isokinetic of Sampling Rate, % | 101.4 | 100.4 | 102.2 | 101.333 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |

Location EU042/EQUI47 SV048/STRU16 CG - Method 3A CO2

| | | | | <u>Average</u> |
|------------------------------------|-------------|------------|-------------|-----------------------|
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/15/2022 | 3/15/2022 | 3/16/2022 | |
| Run Start Time | 8:31:00 AM | 2:25:00 PM | 11:41:00 AM | |
| Run Finish Time | 10:55:00 AM | 4:37:00 PM | 1:49:00 PM | |
| Carbon Dioxide, % | 2.3353 | 2.2052 | 2.0525 | 2.198 |
| Oxygen, % | 17.4452 | 17.6475 | 17.5955 | 17.563 |
| Dry Volumetric Flow Rate, dry scfm | 316961.7 | 295693.3 | 312318 | 308,324.333 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Moisture, % | 13.6169 | 13.8516 | 13.9219 | 13.797 |
| Fuel Type | | | | |
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |

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Location EU042/EQUI47 SV048/STRU16 CG - Method 3A O2

| | | | | <u>Average</u> |
|------------------------------------|-------------|------------|-------------|----------------|
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/15/2022 | 3/15/2022 | 3/16/2022 | |
| Run Start Time | 8:31:00 AM | 2:30:00 PM | 11:41:00 AM | |
| Run Finish Time | 11:45:00 AM | 5:19:00 PM | 1:49:00 PM | |
| Carbon Dioxide, % | 0 | 0 | 0 | 0.000 |
| Oxygen, % | 17.4452 | 17.6475 | 17.5955 | 17.563 |
| Dry Volumetric Flow Rate, dry scfm | 0 | 0 | 0 | 0.000 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Moisture, % | 0 | 0 | 0 | 0.000 |
| Fuel Type | | | | |
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |

Location EU042/EQUI47 SV048/STRU16 NG - Method 10

| | | | | <u>Average</u> |
|------------------------------------|------------|-------------|-------------|----------------|
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/16/2022 | 3/17/2022 | 3/17/2022 | |
| Run Start Time | 3:51:00 PM | 8:37:00 AM | 11:55:00 AM | |
| Run Finish Time | 5:57:00 PM | 10:43:00 AM | 2:34:00 PM | |
| Carbon Dioxide, % | 1.5552 | 1.5875 | 1.5776 | 1.573 |
| Oxygen, % | 17.9096 | 17.8184 | 17.8483 | 17.859 |
| Dry Volumetric Flow Rate, dry scfm | 305472.6 | 305851.9 | 301882.3 | 304,402.267 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Moisture, % | 13.9034 | 13.914 | 13.9713 | 13.930 |
| Fuel Type | | | | |
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |

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Location EU042/EQUI47 SV048/STRU16 NG - Method 26A

| | | | | <u>Average</u> |
|-------------------------------------------------|------------|-------------|-------------|-----------------------|
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/16/2022 | 3/17/2022 | 3/17/2022 | |
| Run Start Time | 3:51:00 PM | 8:37:00 AM | 11:55:00 AM | |
| Run Finish Time | 5:57:00 PM | 10:43:00 AM | 2:34:00 PM | |
| Net Run Time, minutes | 120 | 120 | 120 | |
| Dry Gas Meter Volume Sampled, dscf | 80.493 | 81.447 | 77.245 | 79.728 |
| Moisture Content of Stack Gas, % | 14.1307 | 13.8510 | 14.7848 | 14.256 |
| Moisture Saturation at Stack Gas Temperature, % | 22.25 | 21.76 | 22.02 | 22.010 |
| Carbon Dioxide, % | 1.5552 | 1.5875 | 1.5776 | 1.573 |
| Oxygen, % | 17.9096 | 17.8184 | 17.8483 | 17.859 |
| Average Stack Gas Temperature, °F | 142.67 | 142.00 | 142.46 | 142.377 |
| Square Root of Average Velocity, inches of H2O | 0.9587 | 0.9671 | 0.9628 | 0.963 |
| Dry Volumetric Flow Rate, dry scfm | 304,870.0 | 309,352.1 | 305,127.3 | 306,449.800 |
| Actual Wet Volumetric Flue Gas Flow Rate, acfm | 429,387.6 | 431,509.0 | 430,589.7 | 430,495.433 |
| Percent Isokinetic of Sampling Rate, % | 101.0 | 100.7 | 96.8 | 99.500 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

Location EU042/EQUI47 SV048/STRU16 NG - Method 29

| | | | | <u>Average</u> |
|-------------------------------------------------|------------|-------------|-------------|----------------|
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/16/2022 | 3/17/2022 | 3/17/2022 | |
| Run Start Time | 3:51:00 PM | 8:37:00 AM | 11:55:00 AM | |
| Run Finish Time | 6:47:00 PM | 11:29:00 AM | 3:30:00 PM | |
| Net Run Time, minutes | 168 | 168 | 168 | |
| Dry Gas Meter Volume Sampled, dscf | 113.768 | 114.453 | 112.049 | 113.423 |
| Moisture Content of Stack Gas, % | 13.9034 | 13.9140 | 13.9713 | 13.930 |
| Moisture Saturation at Stack Gas Temperature, % | 21.88 | 22.37 | 22.16 | 22.137 |
| Carbon Dioxide, % | 1.5552 | 1.5875 | 1.5776 | 1.573 |
| Oxygen, % | 17.9096 | 17.8184 | 17.8483 | 17.859 |
| Average Stack Gas Temperature, °F | 142.00 | 143.08 | 142.71 | 142.597 |
| Square Root of Average Velocity, inches of H2O | 0.9580 | 0.9575 | 0.9454 | 0.954 |
| Dry Volumetric Flow Rate, dry scfm | 305,472.6 | 305,851.9 | 301,882.3 | 304,402.267 |
| Actual Wet Volumetric Flue Gas Flow Rate, acfm | 428,609.7 | 427,690.4 | 422,174.5 | 426,158.200 |
| Percent Isokinetic of Sampling Rate, % | 100.8 | 101.3 | 100.5 | 100.867 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |

Location EU042/EQUI47 SV048/STRU16 NG - Method 3A CO2

| | | | | <u>Average</u> |
|------------------------------------|------------|-------------|-----------|----------------|
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/16/2022 | 3/17/2022 | 3/17/2022 | |
| Run Start Time | 3:51:00 PM | 8:37:00 AM | | |
| Run Finish Time | 5:57:00 PM | 10:43:00 AM | | |
| Carbon Dioxide, % | 1.5552 | 1.5875 | 1.5776 | 1.573 |
| Oxygen, % | 17.9096 | 17.8184 | 17.8483 | 17.859 |
| Dry Volumetric Flow Rate, dry scfm | 305472.6 | 305851.9 | 301882.3 | 304,402.267 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Moisture, % | 13.9034 | 13.914 | 13.9713 | 13.930 |
| Fuel Type | | | | |
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

Location EU042/EQUI47 SV048/STRU16 NG - Method 3A O2

| | | | | <u>Average</u> |
|------------------------------------|-------------|-----------|-------------|----------------|
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/16/2022 | 3/17/2022 | 3/17/2022 | |
| Run Start Time | 8:37:00 AM | | 11:55:00 AM | |
| Run Finish Time | 10:43:00 AM | | 2:34:00 PM | |
| Carbon Dioxide, % | 0 | 0 | 0 | 0.000 |
| Oxygen, % | 17.9096 | 17.8184 | 17.8483 | 17.859 |
| Dry Volumetric Flow Rate, dry scfm | 0 | 0 | 0 | 0.000 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Moisture, % | 0 | 0 | 0 | 0.000 |
| Fuel Type | | | | |
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |

Point to Point Isokenitic Calculations

| |
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| |
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United Taconite Line 2 Pellet Induration Furnace 2A ICR

Emissions Summary

Location: EU042/EQUI47 SV048/STRU16 CG - Method 10

Compound: Carbon Monoxide

| | | | | Average | Reg Limit |
|-------|----------|----------|----------|----------------|------------------|
| Run | 1 | 2 | 3 | | |
| lb/hr | 1.42E+01 | 1.24E+01 | 1.29E+01 | 1.32E+01 | |
| ppm | 1.03E+01 | 9.59E+00 | 9.51E+00 | 9.80E+00 | |

Location: EU042/EQUI47 SV048/STRU16 CG - Method 26A

Compound: Hydrogen Chloride

| | | | | Average | Reg Limit |
|------------------------------------------|----------|----------|----------|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |
| Mass_mg | 2.704 | 3.017 | 3.957 | 3.23E+00 | |
| lb / Long Tons of Pellets Processed (CG) | 2.41E-03 | 2.78E-03 | 3.55E-03 | 2.91E-03 | |
| lb/hr | 1.35E+00 | 1.53E+00 | 1.96E+00 | 1.61E+00 | |
| mg/dscm | 1.20E+00 | 1.33E+00 | 1.72E+00 | 1.42E+00 | |

Compound: Hydrogen Fluoride

| | | | | Average | Reg Limit |
|------------------------------------------|----------|----------|----------|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |
| Mass_mg | 0.0651 | 0.142 | 0.175 | 1.27E-01 | |
| lb / Long Tons of Pellets Processed (CG) | 5.81E-05 | 1.30E-04 | 1.57E-04 | 1.15E-04 | |
| lb/hr | 3.25E-02 | 7.19E-02 | 8.65E-02 | 6.36E-02 | |
| mg/dscm | 2.88E-02 | 6.27E-02 | 7.59E-02 | 5.58E-02 | |

Location: EU042/EQUI47 SV048/STRU16 CG - Method 29

Compound: Antimony

| | | | | Average | Reg Limit |
|------------------------------------------|----------|-----------|----------|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |
| Mass_mg | 0.000409 | 0.0004765 | 0.000391 | 4.26E-04 | |
| lb / Long Tons of Pellets Processed (CG) | 2.57E-07 | 3.08E-07 | 2.47E-07 | 2.71E-07 | |
| lb/hr | 1.44E-04 | 1.70E-04 | 1.37E-04 | 1.50E-04 | |
| mg/dscm | 1.22E-04 | 1.53E-04 | 1.17E-04 | 1.31E-04 | |

Compound: Antimony Back Half

| | | | | Average | Reg Limit |
|------------------------------------------|----------|----------|----------|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |
| Mass_mg | 0.000136 | 0.000145 | 0.000066 | 1.16E-04 | |
| lb / Long Tons of Pellets Processed (CG) | 8.58E-08 | 9.38E-08 | 4.17E-08 | 7.38E-08 | |
| lb/hr | 4.80E-05 | 5.17E-05 | 2.31E-05 | 4.09E-05 | |
| mg/dscm | 4.05E-05 | 4.67E-05 | 1.98E-05 | 3.57E-05 | |

Compound: Antimony Front Half

| | | | | Average | Reg Limit |
|-----------|---|---|---|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

| | | | | |
|------------------------------------------|----------|-----------|----------|--------------------------|
| Mass_mg | 0.000273 | 0.0003315 | 0.000325 | 3.10E-04 |
| lb / Long Tons of Pellets Processed (CG) | 1.72E-07 | 2.14E-07 | 2.06E-07 | 1.97E-07 |
| lb/hr | 9.64E-05 | 1.18E-04 | 1.14E-04 | 1.09E-04 |
| mg/dscm | 8.12E-05 | 1.07E-04 | 9.74E-05 | 9.52E-05 |
| Compound: Arsenic | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.215157 | 0.205723 | 0.257274 | 2.26E-01 |
| lb / Long Tons of Pellets Processed (CG) | 1.36E-04 | 1.33E-04 | 1.63E-04 | 1.44E-04 |
| lb/hr | 7.60E-02 | 7.34E-02 | 9.01E-02 | 7.98E-02 |
| mg/dscm | 6.40E-02 | 6.62E-02 | 7.71E-02 | 6.91E-02 |
| Compound: Arsenic Back Half | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.000222 | 0.000288 | 0.000339 | 2.83E-04 |
| lb / Long Tons of Pellets Processed (CG) | 1.40E-07 | 1.87E-07 | 2.15E-07 | 1.81E-07 |
| lb/hr | 7.84E-05 | 1.03E-04 | 1.19E-04 | 1.00E-04 |
| mg/dscm | 6.61E-05 | 9.27E-05 | 1.02E-04 | 8.69E-05 |
| Compound: Arsenic Front Half | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.214935 | 0.205435 | 0.256935 | 2.26E-01 |
| lb / Long Tons of Pellets Processed (CG) | 1.36E-04 | 1.33E-04 | 1.62E-04 | 1.44E-04 |
| lb/hr | 7.59E-02 | 7.33E-02 | 9.00E-02 | 7.97E-02 |
| mg/dscm | 6.40E-02 | 6.62E-02 | 7.70E-02 | 6.91E-02 |
| Compound: Beryllium | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.001164 | 0.000898 | 0.000994 | 1.02E-03 |
| lb / Long Tons of Pellets Processed (CG) | 7.35E-07 | 5.80E-07 | 6.28E-07 | 6.48E-07 |
| lb/hr | 4.11E-04 | 3.20E-04 | 3.48E-04 | 3.60E-04 |
| mg/dscm | 3.46E-04 | 2.89E-04 | 2.98E-04 | 3.11E-04 |
| Compound: Beryllium Back Half | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.000002 | 0.000002 | 0.000002 | 2.00E-06 |
| lb / Long Tons of Pellets Processed (CG) | 1.26E-09 | 1.29E-09 | 1.26E-09 | 1.27E-09 |
| lb/hr | 7.06E-07 | 7.13E-07 | 7.01E-07 | 7.07E-07 |

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| | | | | |
|------------------------------------------|----------|-----------|----------------|------------------|
| mg/dscm | 5.95E-07 | 6.44E-07 | 5.99E-07 | 6.13E-07 |
| Compound: Beryllium Front Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.001162 | 0.000896 | 0.000992 | 1.02E-03 |
| lb / Long Tons of Pellets Processed (CG) | 7.33E-07 | 5.80E-07 | 6.28E-07 | 6.47E-07 |
| lb/hr | 4.10E-04 | 3.20E-04 | 3.48E-04 | 3.59E-04 |
| mg/dscm | 3.46E-04 | 2.89E-04 | 2.97E-04 | 3.11E-04 |
| Compound: Cadmium | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.000507 | 0.0005045 | 0.000517 | 5.10E-04 |
| lb / Long Tons of Pellets Processed (CG) | 3.20E-07 | 3.26E-07 | 3.27E-07 | 3.24E-07 |
| lb/hr | 1.79E-04 | 1.80E-04 | 1.81E-04 | 1.80E-04 |
| mg/dscm | 1.51E-04 | 1.62E-04 | 1.55E-04 | 1.56E-04 |
| Compound: Cadmium Back Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.000084 | 0.0000745 | 0.000088 | 8.22E-05 |
| lb / Long Tons of Pellets Processed (CG) | 5.31E-08 | 4.82E-08 | 5.56E-08 | 5.23E-08 |
| lb/hr | 2.97E-05 | 2.66E-05 | 3.08E-05 | 2.90E-05 |
| mg/dscm | 2.50E-05 | 2.40E-05 | 2.64E-05 | 2.51E-05 |
| Compound: Cadmium Front Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.000423 | 0.00043 | 0.000429 | 4.27E-04 |
| lb / Long Tons of Pellets Processed (CG) | 2.66E-07 | 2.78E-07 | 2.71E-07 | 2.72E-07 |
| lb/hr | 1.49E-04 | 1.53E-04 | 1.50E-04 | 1.51E-04 |
| mg/dscm | 1.26E-04 | 1.38E-04 | 1.29E-04 | 1.31E-04 |
| Compound: Chromium | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.050724 | 0.027508 | 0.024148 | 3.41E-02 |
| lb / Long Tons of Pellets Processed (CG) | 3.20E-05 | 1.78E-05 | 1.53E-05 | 2.17E-05 |
| lb/hr | 1.79E-02 | 9.81E-03 | 8.46E-03 | 1.21E-02 |
| mg/dscm | 1.51E-02 | 8.86E-03 | 7.23E-03 | 1.04E-02 |
| Compound: Chromium Back Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |

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| | | | | |
|------------------------------------------|----------|----------|----------|--------------------------|
| Mass_mg | 0.000564 | 0.003148 | 0.000988 | 1.57E-03 |
| lb / Long Tons of Pellets Processed (CG) | 3.56E-07 | 2.03E-06 | 6.24E-07 | 1.00E-06 |
| lb/hr | 1.99E-04 | 1.12E-03 | 3.46E-04 | 5.55E-04 |
| mg/dscm | 1.68E-04 | 1.01E-03 | 2.96E-04 | 4.91E-04 |
| Compound: Chromium Front Half | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.05016 | 0.02436 | 0.02316 | 3.26E-02 |
| lb / Long Tons of Pellets Processed (CG) | 3.16E-05 | 1.58E-05 | 1.46E-05 | 2.07E-05 |
| lb/hr | 1.77E-02 | 8.69E-03 | 8.11E-03 | 1.15E-02 |
| mg/dscm | 1.49E-02 | 7.84E-03 | 6.94E-03 | 9.89E-03 |
| Compound: Cobalt | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.00248 | 0.002099 | 0.002083 | 2.22E-03 |
| lb / Long Tons of Pellets Processed (CG) | 1.57E-06 | 1.36E-06 | 1.32E-06 | 1.42E-06 |
| lb/hr | 8.76E-04 | 7.49E-04 | 7.30E-04 | 7.85E-04 |
| mg/dscm | 7.38E-04 | 6.76E-04 | 6.24E-04 | 6.79E-04 |
| Compound: Cobalt Back Half | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.000253 | 0.000282 | 0.000256 | 2.64E-04 |
| lb / Long Tons of Pellets Processed (CG) | 1.60E-07 | 1.83E-07 | 1.62E-07 | 1.68E-07 |
| lb/hr | 8.94E-05 | 1.01E-04 | 8.97E-05 | 9.34E-05 |
| mg/dscm | 7.53E-05 | 9.08E-05 | 7.67E-05 | 8.09E-05 |
| Compound: Cobalt Front Half | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.002227 | 0.001817 | 0.001827 | 1.96E-03 |
| lb / Long Tons of Pellets Processed (CG) | 1.41E-06 | 1.18E-06 | 1.15E-06 | 1.25E-06 |
| lb/hr | 7.87E-04 | 6.48E-04 | 6.40E-04 | 6.92E-04 |
| mg/dscm | 6.63E-04 | 5.85E-04 | 5.47E-04 | 5.98E-04 |
| Compound: Filterable Particulate | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 82.47 | 48.64 | 49.42 | 6.02E+01 |
| lb / Long Tons of Pellets Processed (CG) | 5.20E-02 | 3.14E-02 | 3.12E-02 | 3.82E-02 |
| lb/hr | 2.91E+01 | 1.73E+01 | 1.73E+01 | 2.12E+01 |

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| | | | | |
|------------------------------------------|----------|----------|----------------|------------------|
| mg/dscm | 2.45E+01 | 1.57E+01 | 1.48E+01 | 1.83E+01 |
| Compound: Lead | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.044152 | 0.043517 | 0.046622 | 4.48E-02 |
| lb / Long Tons of Pellets Processed (CG) | 2.79E-05 | 2.81E-05 | 2.94E-05 | 2.85E-05 |
| lb/hr | 1.56E-02 | 1.55E-02 | 1.63E-02 | 1.58E-02 |
| mg/dscm | 1.31E-02 | 1.40E-02 | 1.40E-02 | 1.37E-02 |
| Compound: Lead Back Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.005347 | 0.003612 | 0.003117 | 4.03E-03 |
| lb / Long Tons of Pellets Processed (CG) | 3.38E-06 | 2.34E-06 | 1.97E-06 | 2.56E-06 |
| lb/hr | 1.89E-03 | 1.29E-03 | 1.09E-03 | 1.42E-03 |
| mg/dscm | 1.59E-03 | 1.16E-03 | 9.34E-04 | 1.23E-03 |
| Compound: Lead Front Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.038805 | 0.039905 | 0.043505 | 4.07E-02 |
| lb / Long Tons of Pellets Processed (CG) | 2.45E-05 | 2.58E-05 | 2.74E-05 | 2.59E-05 |
| lb/hr | 1.37E-02 | 1.42E-02 | 1.52E-02 | 1.44E-02 |
| mg/dscm | 1.15E-02 | 1.28E-02 | 1.30E-02 | 1.24E-02 |
| Compound: Manganese | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.162226 | 0.077386 | 0.081926 | 1.07E-01 |
| lb / Long Tons of Pellets Processed (CG) | 1.02E-04 | 5.01E-05 | 5.18E-05 | 6.80E-05 |
| lb/hr | 5.73E-02 | 2.76E-02 | 2.87E-02 | 3.79E-02 |
| mg/dscm | 4.83E-02 | 2.49E-02 | 2.45E-02 | 3.26E-02 |
| Compound: Manganese Back Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.002686 | 0.002596 | 0.007086 | 4.12E-03 |
| lb / Long Tons of Pellets Processed (CG) | 1.70E-06 | 1.68E-06 | 4.47E-06 | 2.62E-06 |
| lb/hr | 9.49E-04 | 9.26E-04 | 2.48E-03 | 1.45E-03 |
| mg/dscm | 7.99E-04 | 8.36E-04 | 2.12E-03 | 1.25E-03 |
| Compound: Manganese Front Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |

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| | | | | |
|------------------------------------------|-----------|----------|----------|--------------------------|
| Mass_mg | 0.15954 | 0.07479 | 0.07484 | 1.03E-01 |
| lb / Long Tons of Pellets Processed (CG) | 1.01E-04 | 4.84E-05 | 4.73E-05 | 6.56E-05 |
| lb/hr | 5.64E-02 | 2.67E-02 | 2.62E-02 | 3.64E-02 |
| mg/dscm | 4.75E-02 | 2.41E-02 | 2.24E-02 | 3.13E-02 |
| Compound: Mercury | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.0180455 | 0.016297 | 0.019877 | 1.81E-02 |
| lb / Long Tons of Pellets Processed (CG) | 1.14E-05 | 1.05E-05 | 1.26E-05 | 1.15E-05 |
| lb/hr | 6.37E-03 | 5.81E-03 | 6.96E-03 | 6.38E-03 |
| mg/dscm | 5.37E-03 | 5.25E-03 | 5.95E-03 | 5.52E-03 |
| Compound: Mercury Back Half | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.018007 | 0.016277 | 0.019857 | 1.80E-02 |
| lb / Long Tons of Pellets Processed (CG) | 1.14E-05 | 1.05E-05 | 1.26E-05 | 1.15E-05 |
| lb/hr | 6.36E-03 | 5.80E-03 | 6.96E-03 | 6.37E-03 |
| mg/dscm | 5.36E-03 | 5.24E-03 | 5.95E-03 | 5.52E-03 |
| Compound: Mercury Front Half | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.0000385 | 0.00002 | 0.00002 | 2.62E-05 |
| lb / Long Tons of Pellets Processed (CG) | 2.43E-08 | 1.29E-08 | 1.26E-08 | 1.66E-08 |
| lb/hr | 1.36E-05 | 7.13E-06 | 7.01E-06 | 9.25E-06 |
| mg/dscm | 1.15E-05 | 6.44E-06 | 5.99E-06 | 7.98E-06 |
| Compound: Nickel | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.009143 | 0.009308 | 0.009113 | 9.19E-03 |
| lb / Long Tons of Pellets Processed (CG) | 5.77E-06 | 6.02E-06 | 5.76E-06 | 5.85E-06 |
| lb/hr | 3.23E-03 | 3.32E-03 | 3.19E-03 | 3.25E-03 |
| mg/dscm | 2.72E-03 | 3.00E-03 | 2.73E-03 | 2.82E-03 |
| Compound: Nickel Back Half | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.001093 | 0.002708 | 0.001163 | 1.65E-03 |
| lb / Long Tons of Pellets Processed (CG) | 6.90E-07 | 1.75E-06 | 7.34E-07 | 1.06E-06 |
| lb/hr | 3.86E-04 | 9.66E-04 | 4.07E-04 | 5.86E-04 |

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| | | | | |
|-----------------------------------------------------|----------|----------|----------------|------------------|
| mg/dscm | 3.25E-04 | 8.72E-04 | 3.48E-04 | 5.15E-04 |
| Compound: Nickel Front Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.00805 | 0.0066 | 0.00795 | 7.53E-03 |
| lb / Long Tons of Pellets Processed (CG) | 5.08E-06 | 4.26E-06 | 5.03E-06 | 4.79E-06 |
| lb/hr | 2.84E-03 | 2.35E-03 | 2.79E-03 | 2.66E-03 |
| mg/dscm | 2.40E-03 | 2.13E-03 | 2.38E-03 | 2.30E-03 |
| Compound: Phosphorus (yellow or white) | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.0617 | 0.05335 | 0.0751 | 6.34E-02 |
| lb / Long Tons of Pellets Processed (CG) | 3.90E-05 | 3.45E-05 | 4.74E-05 | 4.03E-05 |
| lb/hr | 2.18E-02 | 1.90E-02 | 2.63E-02 | 2.24E-02 |
| mg/dscm | 1.84E-02 | 1.72E-02 | 2.25E-02 | 1.94E-02 |
| Compound: Phosphorus (yellow or white) Back | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.0017 | 0.00135 | 0.0071 | 3.38E-03 |
| lb / Long Tons of Pellets Processed (CG) | 1.07E-06 | 8.72E-07 | 4.49E-06 | 2.14E-06 |
| lb/hr | 6.00E-04 | 4.81E-04 | 2.49E-03 | 1.19E-03 |
| mg/dscm | 5.06E-04 | 4.35E-04 | 2.13E-03 | 1.02E-03 |
| Compound: Phosphorus (yellow or white) Front | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.06 | 0.052 | 0.068 | 6.00E-02 |
| lb / Long Tons of Pellets Processed (CG) | 3.79E-05 | 3.36E-05 | 4.29E-05 | 3.81E-05 |
| lb/hr | 2.12E-02 | 1.85E-02 | 2.38E-02 | 2.12E-02 |
| mg/dscm | 1.79E-02 | 1.67E-02 | 2.04E-02 | 1.83E-02 |
| Compound: Selenium | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.02324 | 0.029985 | 0.02955 | 2.76E-02 |
| lb / Long Tons of Pellets Processed (CG) | 1.47E-05 | 1.94E-05 | 1.88E-05 | 1.76E-05 |
| lb/hr | 8.21E-03 | 1.07E-02 | 1.04E-02 | 9.77E-03 |
| mg/dscm | 6.92E-03 | 9.66E-03 | 8.85E-03 | 8.48E-03 |
| Compound: Selenium Back Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

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|---------------------------------------------------------------|----------|----------|----------|--------------------------|
| Mass_mg | 0.00214 | 0.003385 | 0.00345 | 2.99E-03 |
| lb / Long Tons of Pellets Processed (CG) | 1.35E-06 | 2.19E-06 | 2.18E-06 | 1.91E-06 |
| lb/hr | 7.56E-04 | 1.21E-03 | 1.21E-03 | 1.06E-03 |
| mg/dscm | 6.37E-04 | 1.09E-03 | 1.03E-03 | 9.19E-04 |
| Compound: Selenium Front Half | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.0211 | 0.0266 | 0.0261 | 2.46E-02 |
| lb / Long Tons of Pellets Processed (CG) | 1.33E-05 | 1.72E-05 | 1.65E-05 | 1.57E-05 |
| lb/hr | 7.45E-03 | 9.49E-03 | 9.14E-03 | 8.69E-03 |
| mg/dscm | 6.28E-03 | 8.57E-03 | 7.82E-03 | 7.56E-03 |
| Location: EU042/EQUI47 SV048/STRU16 CG - Method 3A CO2 | | | | |
| Compound: Carbon Dioxide | | | | |
| | | | | Average Reg Limit |
| Run | 1 | 2 | 3 | |
| Percent(%) | 2.34E+00 | 2.21E+00 | 2.05E+00 | 2.20E+00 |
| Location: EU042/EQUI47 SV048/STRU16 CG - Method 3A O2 | | | | |
| Compound: Oxygen | | | | |
| | | | | Average Reg Limit |
| Run | 1 | 2 | 3 | |
| Percent(%) | 1.74E+01 | 1.76E+01 | 1.76E+01 | 1.75E+01 |
| Location: EU042/EQUI47 SV048/STRU16 NG - Method 10 | | | | |
| Compound: Carbon Monoxide | | | | |
| | | | | Average Reg Limit |
| Run | 1 | 2 | 3 | |
| lb/hr | 1.10E+01 | 1.07E+01 | 1.06E+01 | 1.08E+01 |
| ppm | 8.28E+00 | 8.05E+00 | 8.05E+00 | 8.13E+00 |
| Location: EU042/EQUI47 SV048/STRU16 NG - Method 26A | | | | |
| Compound: Hydrogen Chloride | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.77 | 0.948 | 1.089 | 9.36E-01 |
| lb / Long Tons of Pellets Processed (NG) | 7.06E-04 | 8.79E-04 | 1.04E-03 | 8.75E-04 |
| lb/hr | 3.86E-01 | 4.76E-01 | 5.69E-01 | 4.77E-01 |
| mg/dscm | 3.38E-01 | 4.11E-01 | 4.98E-01 | 4.16E-01 |
| Compound: Hydrogen Fluoride | | | | |
| | | | | Average Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.0317 | 0.0306 | 0.0301 | 3.08E-02 |
| lb / Long Tons of Pellets Processed (NG) | 2.91E-05 | 2.85E-05 | 2.88E-05 | 2.88E-05 |

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|-----------------------------------------------------------|----------|-----------|----------------|------------------|
| lb/hr | 1.59E-02 | 1.54E-02 | 1.57E-02 | 1.57E-02 |
| mg/dscm | 1.39E-02 | 1.33E-02 | 1.38E-02 | 1.37E-02 |
| Location: EU042/EQUI47 SV048/STRU16 NG - Method 29 | | | | |
| Compound: Antimony | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.000795 | 0.000158 | 0.000171 | 3.75E-04 |
| lb / Long Tons of Pellets Processed (NG) | 5.16E-07 | 1.03E-07 | 1.12E-07 | 2.44E-07 |
| lb/hr | 2.82E-04 | 5.59E-05 | 6.09E-05 | 1.33E-04 |
| mg/dscm | 2.47E-04 | 4.88E-05 | 5.39E-05 | 1.17E-04 |
| Compound: Antimony Back Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.000081 | 0.000052 | 0.00006 | 6.43E-05 |
| lb / Long Tons of Pellets Processed (NG) | 5.27E-08 | 3.40E-08 | 3.93E-08 | 4.20E-08 |
| lb/hr | 2.88E-05 | 1.84E-05 | 2.14E-05 | 2.29E-05 |
| mg/dscm | 2.51E-05 | 1.60E-05 | 1.89E-05 | 2.00E-05 |
| Compound: Antimony Front Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.000714 | 0.000106 | 0.000111 | 3.10E-04 |
| lb / Long Tons of Pellets Processed (NG) | 4.65E-07 | 6.92E-08 | 7.27E-08 | 2.02E-07 |
| lb/hr | 2.54E-04 | 3.75E-05 | 3.96E-05 | 1.10E-04 |
| mg/dscm | 2.22E-04 | 3.27E-05 | 3.50E-05 | 9.66E-05 |
| Compound: Arsenic | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.112031 | 0.1750655 | 0.16807 | 1.52E-01 |
| lb / Long Tons of Pellets Processed (NG) | 7.28E-05 | 1.14E-04 | 1.10E-04 | 9.89E-05 |
| lb/hr | 3.98E-02 | 6.19E-02 | 5.99E-02 | 5.39E-02 |
| mg/dscm | 3.48E-02 | 5.40E-02 | 5.30E-02 | 4.73E-02 |
| Compound: Arsenic Back Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.000096 | 0.0001305 | 0.000135 | 1.21E-04 |
| lb / Long Tons of Pellets Processed (NG) | 6.24E-08 | 8.51E-08 | 8.83E-08 | 7.86E-08 |
| lb/hr | 3.41E-05 | 4.61E-05 | 4.81E-05 | 4.28E-05 |
| mg/dscm | 2.98E-05 | 4.03E-05 | 4.26E-05 | 3.76E-05 |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

Compound: Arsenic Front Half

| | | | | Average | Reg Limit |
|------------------------------------------|----------|----------|----------|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |
| Mass_mg | 0.111935 | 0.174935 | 0.167935 | 1.52E-01 | |
| lb / Long Tons of Pellets Processed (NG) | 7.28E-05 | 1.14E-04 | 1.10E-04 | 9.89E-05 | |
| lb/hr | 3.98E-02 | 6.18E-02 | 5.98E-02 | 5.38E-02 | |
| mg/dscm | 3.48E-02 | 5.40E-02 | 5.29E-02 | 4.72E-02 | |

Compound: Beryllium

| | | | | Average | Reg Limit |
|------------------------------------------|----------|----------|----------|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |
| Mass_mg | 0.000267 | 0.000273 | 0.000254 | 2.65E-04 | |
| lb / Long Tons of Pellets Processed (NG) | 1.74E-07 | 1.78E-07 | 1.66E-07 | 1.73E-07 | |
| lb/hr | 9.48E-05 | 9.65E-05 | 9.05E-05 | 9.39E-05 | |
| mg/dscm | 8.29E-05 | 8.42E-05 | 8.01E-05 | 8.24E-05 | |

Compound: Beryllium Back Half

| | | | | Average | Reg Limit |
|------------------------------------------|----------|----------|----------|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |
| Mass_mg | 0.000002 | 0.000002 | 0.000003 | 2.33E-06 | |
| lb / Long Tons of Pellets Processed (NG) | 1.30E-09 | 1.30E-09 | 1.96E-09 | 1.52E-09 | |
| lb/hr | 7.10E-07 | 7.07E-07 | 1.07E-06 | 8.29E-07 | |
| mg/dscm | 6.21E-07 | 6.17E-07 | 9.46E-07 | 7.28E-07 | |

Compound: Beryllium Front Half

| | | | | Average | Reg Limit |
|------------------------------------------|----------|----------|----------|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |
| Mass_mg | 0.000265 | 0.000271 | 0.000251 | 2.62E-04 | |
| lb / Long Tons of Pellets Processed (NG) | 1.72E-07 | 1.77E-07 | 1.64E-07 | 1.71E-07 | |
| lb/hr | 9.41E-05 | 9.58E-05 | 8.95E-05 | 9.31E-05 | |
| mg/dscm | 8.23E-05 | 8.36E-05 | 7.91E-05 | 8.17E-05 | |

Compound: Cadmium

| | | | | Average | Reg Limit |
|------------------------------------------|----------|-----------|----------|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |
| Mass_mg | 0.000444 | 0.0002515 | 0.000275 | 3.24E-04 | |
| lb / Long Tons of Pellets Processed (NG) | 2.89E-07 | 1.64E-07 | 1.80E-07 | 2.11E-07 | |
| lb/hr | 1.58E-04 | 8.89E-05 | 9.80E-05 | 1.15E-04 | |
| mg/dscm | 1.38E-04 | 7.76E-05 | 8.67E-05 | 1.01E-04 | |

Compound: Cadmium Back Half

| | | | | Average | Reg Limit |
|-----------|----------|----------|----------|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |
| Mass_mg | 0.000255 | 0.000043 | 0.000042 | 1.13E-04 | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

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|------------------------------------------|----------|-----------|----------------|------------------|
| lb / Long Tons of Pellets Processed (NG) | 1.66E-07 | 2.81E-08 | 2.75E-08 | 7.39E-08 |
| lb/hr | 9.06E-05 | 1.52E-05 | 1.50E-05 | 4.03E-05 |
| mg/dscm | 7.92E-05 | 1.33E-05 | 1.32E-05 | 3.52E-05 |
| Compound: Cadmium Front Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.000189 | 0.0002085 | 0.000233 | 2.10E-04 |
| lb / Long Tons of Pellets Processed (NG) | 1.23E-07 | 1.36E-07 | 1.52E-07 | 1.37E-07 |
| lb/hr | 6.71E-05 | 7.37E-05 | 8.30E-05 | 7.46E-05 |
| mg/dscm | 5.87E-05 | 6.43E-05 | 7.34E-05 | 6.55E-05 |
| Compound: Chromium | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.034028 | 0.031187 | 0.027981 | 3.11E-02 |
| lb / Long Tons of Pellets Processed (NG) | 2.21E-05 | 2.03E-05 | 1.83E-05 | 2.02E-05 |
| lb/hr | 1.21E-02 | 1.10E-02 | 9.97E-03 | 1.10E-02 |
| mg/dscm | 1.06E-02 | 9.62E-03 | 8.82E-03 | 9.68E-03 |
| Compound: Chromium Back Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.000768 | 0.000727 | 0.000621 | 7.05E-04 |
| lb / Long Tons of Pellets Processed (NG) | 5.00E-07 | 4.74E-07 | 4.06E-07 | 4.60E-07 |
| lb/hr | 2.73E-04 | 2.57E-04 | 2.21E-04 | 2.50E-04 |
| mg/dscm | 2.38E-04 | 2.24E-04 | 1.96E-04 | 2.19E-04 |
| Compound: Chromium Front Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.03326 | 0.03046 | 0.02736 | 3.04E-02 |
| lb / Long Tons of Pellets Processed (NG) | 2.16E-05 | 1.99E-05 | 1.79E-05 | 1.98E-05 |
| lb/hr | 1.18E-02 | 1.08E-02 | 9.75E-03 | 1.08E-02 |
| mg/dscm | 1.03E-02 | 9.40E-03 | 8.62E-03 | 9.44E-03 |
| Compound: Cobalt | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.000955 | 0.0004535 | 0.000484 | 6.31E-04 |
| lb / Long Tons of Pellets Processed (NG) | 6.21E-07 | 2.95E-07 | 3.16E-07 | 4.11E-07 |
| lb/hr | 3.39E-04 | 1.60E-04 | 1.72E-04 | 2.24E-04 |
| mg/dscm | 2.96E-04 | 1.40E-04 | 1.53E-04 | 1.96E-04 |

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Compound: Cobalt Back Half

| | | | | Average | Reg Limit |
|------------------------------------------|----------|-----------|----------|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |
| Mass_mg | 0.000348 | 0.0000255 | 0.000081 | 1.52E-04 | |
| lb / Long Tons of Pellets Processed (NG) | 2.27E-07 | 1.66E-08 | 5.31E-08 | 9.89E-08 | |
| lb/hr | 1.24E-04 | 9.01E-06 | 2.89E-05 | 5.40E-05 | |
| mg/dscm | 1.08E-04 | 7.87E-06 | 2.55E-05 | 4.71E-05 | |

Compound: Cobalt Front Half

| | | | | Average | Reg Limit |
|------------------------------------------|----------|----------|----------|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |
| Mass_mg | 0.000607 | 0.000428 | 0.000403 | 4.79E-04 | |
| lb / Long Tons of Pellets Processed (NG) | 3.95E-07 | 2.79E-07 | 2.64E-07 | 3.13E-07 | |
| lb/hr | 2.16E-04 | 1.51E-04 | 1.44E-04 | 1.70E-04 | |
| mg/dscm | 1.88E-04 | 1.32E-04 | 1.27E-04 | 1.49E-04 | |

Compound: Filterable Particulate

| | | | | Average | Reg Limit |
|------------------------------------------|----------|----------|----------|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |
| Mass_mg | 53.42 | 49.05 | 44.44 | 4.90E+01 | |
| lb / Long Tons of Pellets Processed (NG) | 3.48E-02 | 3.19E-02 | 2.90E-02 | 3.19E-02 | |
| lb/hr | 1.90E+01 | 1.73E+01 | 1.58E+01 | 1.74E+01 | |
| mg/dscm | 1.66E+01 | 1.51E+01 | 1.40E+01 | 1.52E+01 | |

Compound: Lead

| | | | | Average | Reg Limit |
|------------------------------------------|----------|----------|----------|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |
| Mass_mg | 0.018602 | 0.011877 | 0.013252 | 1.46E-02 | |
| lb / Long Tons of Pellets Processed (NG) | 1.21E-05 | 7.75E-06 | 8.66E-06 | 9.50E-06 | |
| lb/hr | 6.61E-03 | 4.20E-03 | 4.72E-03 | 5.18E-03 | |
| mg/dscm | 5.78E-03 | 3.67E-03 | 4.18E-03 | 4.54E-03 | |

Compound: Lead Back Half

| | | | | Average | Reg Limit |
|------------------------------------------|----------|----------|----------|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |
| Mass_mg | 0.007797 | 0.001572 | 0.001447 | 3.61E-03 | |
| lb / Long Tons of Pellets Processed (NG) | 5.07E-06 | 1.03E-06 | 9.47E-07 | 2.35E-06 | |
| lb/hr | 2.77E-03 | 5.56E-04 | 5.16E-04 | 1.28E-03 | |
| mg/dscm | 2.42E-03 | 4.85E-04 | 4.56E-04 | 1.12E-03 | |

Compound: Lead Front Half

| | | | | Average | Reg Limit |
|-----------|----------|----------|----------|----------------|------------------|
| RunNumber | 1 | 2 | 3 | | |
| Mass_mg | 0.010805 | 0.010305 | 0.011805 | 1.10E-02 | |

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|------------------------------------------|-----------|-----------|----------------|------------------|
| lb / Long Tons of Pellets Processed (NG) | 7.03E-06 | 6.72E-06 | 7.73E-06 | 7.16E-06 |
| lb/hr | 3.84E-03 | 3.64E-03 | 4.21E-03 | 3.90E-03 |
| mg/dscm | 3.35E-03 | 3.18E-03 | 3.72E-03 | 3.42E-03 |
| Compound: Manganese | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.122026 | 0.092256 | 0.122666 | 1.12E-01 |
| lb / Long Tons of Pellets Processed (NG) | 7.93E-05 | 6.02E-05 | 8.02E-05 | 7.32E-05 |
| lb/hr | 4.33E-02 | 3.26E-02 | 4.37E-02 | 3.99E-02 |
| mg/dscm | 3.79E-02 | 2.85E-02 | 3.87E-02 | 3.50E-02 |
| Compound: Manganese Back Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.002486 | 0.005316 | 0.044826 | 1.75E-02 |
| lb / Long Tons of Pellets Processed (NG) | 1.62E-06 | 3.47E-06 | 2.94E-05 | 1.15E-05 |
| lb/hr | 8.83E-04 | 1.88E-03 | 1.60E-02 | 6.25E-03 |
| mg/dscm | 7.72E-04 | 1.64E-03 | 1.41E-02 | 5.50E-03 |
| Compound: Manganese Front Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.11954 | 0.08694 | 0.07784 | 9.48E-02 |
| lb / Long Tons of Pellets Processed (NG) | 7.78E-05 | 5.67E-05 | 5.08E-05 | 6.18E-05 |
| lb/hr | 4.25E-02 | 3.07E-02 | 2.77E-02 | 3.36E-02 |
| mg/dscm | 3.71E-02 | 2.68E-02 | 2.45E-02 | 2.95E-02 |
| Compound: Mercury | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.018015 | 0.014622 | 0.0168944 | 1.65E-02 |
| lb / Long Tons of Pellets Processed (NG) | 1.17E-05 | 9.54E-06 | 1.11E-05 | 1.08E-05 |
| lb/hr | 6.40E-03 | 5.17E-03 | 6.02E-03 | 5.86E-03 |
| mg/dscm | 5.59E-03 | 4.51E-03 | 5.33E-03 | 5.14E-03 |
| Compound: Mercury Back Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.0179915 | 0.0146015 | 0.0168744 | 1.65E-02 |
| lb / Long Tons of Pellets Processed (NG) | 1.17E-05 | 9.52E-06 | 1.10E-05 | 1.07E-05 |
| lb/hr | 6.39E-03 | 5.16E-03 | 6.01E-03 | 5.85E-03 |
| mg/dscm | 5.59E-03 | 4.51E-03 | 5.32E-03 | 5.14E-03 |

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|----------------------------------------------------|-----------|-----------|----------------|------------------|
| Compound: Mercury Front Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.0000235 | 0.0000205 | 0.00002 | 2.13E-05 |
| lb / Long Tons of Pellets Processed (NG) | 1.53E-08 | 1.34E-08 | 1.31E-08 | 1.39E-08 |
| lb/hr | 8.35E-06 | 7.25E-06 | 7.13E-06 | 7.58E-06 |
| mg/dscm | 7.30E-06 | 6.33E-06 | 6.30E-06 | 6.64E-06 |
| Compound: Nickel | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.005833 | 0.003233 | 0.002913 | 3.99E-03 |
| lb / Long Tons of Pellets Processed (NG) | 3.79E-06 | 2.10E-06 | 1.91E-06 | 2.60E-06 |
| lb/hr | 2.07E-03 | 1.14E-03 | 1.04E-03 | 1.42E-03 |
| mg/dscm | 1.81E-03 | 9.98E-04 | 9.18E-04 | 1.24E-03 |
| Compound: Nickel Back Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.002943 | 0.000918 | 0.000863 | 1.57E-03 |
| lb / Long Tons of Pellets Processed (NG) | 1.92E-06 | 5.98E-07 | 5.65E-07 | 1.03E-06 |
| lb/hr | 1.05E-03 | 3.24E-04 | 3.08E-04 | 5.61E-04 |
| mg/dscm | 9.14E-04 | 2.83E-04 | 2.72E-04 | 4.90E-04 |
| Compound: Nickel Front Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.00289 | 0.002315 | 0.00205 | 2.42E-03 |
| lb / Long Tons of Pellets Processed (NG) | 1.89E-06 | 1.51E-06 | 1.34E-06 | 1.58E-06 |
| lb/hr | 1.03E-03 | 8.18E-04 | 7.31E-04 | 8.60E-04 |
| mg/dscm | 8.97E-04 | 7.14E-04 | 6.46E-04 | 7.52E-04 |
| Compound: Phosphorus (yellow or white) | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.028 | 0.0292 | 0.0274 | 2.82E-02 |
| lb / Long Tons of Pellets Processed (NG) | 1.82E-05 | 1.90E-05 | 1.79E-05 | 1.84E-05 |
| lb/hr | 9.94E-03 | 1.03E-02 | 9.76E-03 | 1.00E-02 |
| mg/dscm | 8.69E-03 | 9.01E-03 | 8.64E-03 | 8.78E-03 |
| Compound: Phosphorus (yellow or white) Back | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.004 | 0.0032 | 0.0044 | 3.87E-03 |

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|---------------------------------------------------------------|----------|----------|----------------|------------------|
| lb / Long Tons of Pellets Processed (NG) | 2.60E-06 | 2.09E-06 | 2.88E-06 | 2.52E-06 |
| lb/hr | 1.42E-03 | 1.13E-03 | 1.57E-03 | 1.37E-03 |
| mg/dscm | 1.24E-03 | 9.88E-04 | 1.39E-03 | 1.21E-03 |
| Compound: Phosphorus (yellow or white) Front | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.024 | 0.026 | 0.023 | 2.43E-02 |
| lb / Long Tons of Pellets Processed (NG) | 1.56E-05 | 1.70E-05 | 1.51E-05 | 1.59E-05 |
| lb/hr | 8.52E-03 | 9.19E-03 | 8.20E-03 | 8.64E-03 |
| mg/dscm | 7.45E-03 | 8.02E-03 | 7.25E-03 | 7.57E-03 |
| Compound: Selenium | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.01021 | 0.010525 | 0.01064 | 1.05E-02 |
| lb / Long Tons of Pellets Processed (NG) | 6.64E-06 | 6.87E-06 | 6.96E-06 | 6.82E-06 |
| lb/hr | 3.63E-03 | 3.72E-03 | 3.79E-03 | 3.71E-03 |
| mg/dscm | 3.17E-03 | 3.25E-03 | 3.35E-03 | 3.26E-03 |
| Compound: Selenium Back Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.00162 | 0.00113 | 0.00119 | 1.31E-03 |
| lb / Long Tons of Pellets Processed (NG) | 1.05E-06 | 7.36E-07 | 7.78E-07 | 8.55E-07 |
| lb/hr | 5.75E-04 | 3.99E-04 | 4.24E-04 | 4.66E-04 |
| mg/dscm | 5.03E-04 | 3.49E-04 | 3.75E-04 | 4.09E-04 |
| Compound: Selenium Front Half | | | | |
| | | | Average | Reg Limit |
| RunNumber | 1 | 2 | 3 | |
| Mass_mg | 0.00859 | 0.009395 | 0.00945 | 9.15E-03 |
| lb / Long Tons of Pellets Processed (NG) | 5.58E-06 | 6.13E-06 | 6.19E-06 | 5.97E-06 |
| lb/hr | 3.05E-03 | 3.32E-03 | 3.37E-03 | 3.25E-03 |
| mg/dscm | 2.67E-03 | 2.90E-03 | 2.98E-03 | 2.85E-03 |
| Location: EU042/EQUI47 SV048/STRU16 NG - Method 3A CO2 | | | | |
| Compound: Carbon Dioxide | | | | |
| | | | Average | Reg Limit |
| Run | 1 | 2 | 3 | |
| Percent(%) | 1.56E+00 | 1.59E+00 | 1.58E+00 | 1.58E+00 |
| Location: EU042/EQUI47 SV048/STRU16 NG - Method 3A O2 | | | | |
| Compound: Oxygen | | | | |
| | | | Average | Reg Limit |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

| | | | | |
|------------|----------|----------|----------|----------|
| Run | 1 | 2 | 3 | |
| Percent(%) | 1.79E+01 | 1.78E+01 | 1.78E+01 | 1.78E+01 |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

Process Run Data

| Process: | Pellets Processed (CG) | | | | SCC: | 30302350 |
|----------|------------------------|-----------------|------------|-------------|---------|----------|
| Comment: | Coal/gas mixture | | | | | |
| Run | Value | Unit of Measure | Target Low | Target High | Comment | |
| 1 | 559.5 | Long Tons/hr | 450 | 600 | M29 | |
| 2 | 551.3 | Long Tons/hr | 450 | 600 | M29 | |
| 3 | 554.3 | Long Tons/hr | 450 | 600 | M29 | |
| 4 | 559.3 | Long Tons/hr | 450 | 600 | M26A | |
| 5 | 551.2 | Long Tons/hr | 450 | 600 | M26A | |
| 6 | 551.5 | Long Tons/hr | 450 | 600 | M26A | |
| 7 | 0 | Long Tons/hr | 450 | 600 | | |
| 8 | 0 | Long Tons/hr | 450 | 600 | | |
| 9 | 0 | Long Tons/hr | 450 | 600 | | |
| 10 | 0 | Long Tons/hr | 450 | 600 | | |
| 11 | 0 | Long Tons/hr | 450 | 600 | | |
| 12 | 0 | Long Tons/hr | 450 | 600 | | |
| Process: | Pellets Processed (NG) | | | | SCC: | |
| Comment: | Natural Gas | | | | | |
| Run | Value | Unit of Measure | Target Low | Target High | Comment | |
| 1 | 0 | Long Tons/hr | 450 | 600 | | |
| 2 | 0 | Long Tons/hr | 450 | 600 | | |
| 3 | 0 | Long Tons/hr | 450 | 600 | | |
| 4 | 0 | Long Tons/hr | 450 | 600 | | |
| 5 | 0 | Long Tons/hr | 450 | 600 | | |
| 6 | 0 | Long Tons/hr | 450 | 600 | | |
| 7 | 546.3 | Long Tons/hr | 450 | 600 | M29 | |
| 8 | 541.8 | Long Tons/hr | 450 | 600 | M29 | |
| 9 | 544.8 | Long Tons/hr | 450 | 600 | M29 | |
| 10 | 546.4 | Long Tons/hr | 450 | 600 | M26A | |
| 11 | 541.3 | Long Tons/hr | 450 | 600 | M26A | |
| 12 | 544.8 | Long Tons/hr | 450 | 600 | M26A | |
| Process: | Natural Gas Burned | | | | SCC: | |
| Comment: | | | | | | |
| Run | Value | Unit of Measure | Target Low | Target High | Comment | |
| 1 | 3222 | Cubic Feet/min | 0 | 0 | M29 | |
| 2 | 3072 | Cubic Feet/min | 0 | 0 | M29 | |
| 3 | 3095 | Cubic Feet/min | 0 | 0 | M29 | |
| 4 | 3227 | Cubic Feet/min | 0 | 0 | M26A | |
| 5 | 3072 | Cubic Feet/min | 0 | 0 | M26A | |
| 6 | 3106 | Cubic Feet/min | 0 | 0 | M26A | |
| 7 | 4489 | Cubic Feet/min | 0 | 0 | M29 | |
| 8 | 4652 | Cubic Feet/min | 0 | 0 | M29 | |
| 9 | 4624 | Cubic Feet/min | 0 | 0 | M29 | |
| 10 | 4491 | Cubic Feet/min | 0 | 0 | M26A | |
| 11 | 4680 | Cubic Feet/min | 0 | 0 | M26A | |
| 12 | 4650 | Cubic Feet/min | 0 | 0 | M26A | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

| Process: Coal Burned | | SCC: | | | |
|---------------------------------|-------|-----------------|------------|-------------|----------|
| Comment: | | | | | |
| Run | Value | Unit of Measure | Target Low | Target High | Comment |
| 1 | 5.59 | Tons/hr | 0 | 0 | M29 |
| 2 | 4.98 | Tons/hr | 0 | 0 | M29 |
| 3 | 5.18 | Tons/hr | 0 | 0 | M29 |
| 4 | 5.59 | Tons/hr | 0 | 0 | M26A |
| 5 | 4.98 | Tons/hr | 0 | 0 | M26A |
| 6 | 5.18 | Tons/hr | 0 | 0 | M26A |
| 7 | 0 | Tons/hr | 0 | 0 | |
| 8 | 0 | Tons/hr | 0 | 0 | |
| 9 | 0 | Tons/hr | 0 | 0 | |
| 10 | 0 | Tons/hr | 0 | 0 | |
| 11 | 0 | Tons/hr | 0 | 0 | |
| 12 | 0 | Tons/hr | 0 | 0 | |
| Process: Binder Added (NG) | | SCC: | | | |
| Comment: Natural Gas - CBI | | | | | |
| Run | Value | Unit of Measure | Target Low | Target High | Comment |
| 1 | 0 | lb/hr | 0 | 0 | |
| 2 | 0 | lb/hr | 0 | 0 | |
| 3 | 0 | lb/hr | 0 | 0 | |
| 4 | 0 | lb/hr | 0 | 0 | |
| 5 | 0 | lb/hr | 0 | 0 | |
| 6 | 0 | lb/hr | 0 | 0 | |
| 7 | 0 | lb/hr | 0 | 0 | CBI M29 |
| 8 | 0 | lb/hr | 0 | 0 | CBI M29 |
| 9 | 0 | lb/hr | 0 | 0 | CBI M29 |
| 10 | 0 | lb/hr | 0 | 0 | CBI M26A |
| 11 | 0 | lb/hr | 0 | 0 | CBI M26A |
| 12 | 0 | lb/hr | 0 | 0 | CBI M26A |
| Process: Binder Added (CG) | | SCC: | | | |
| Comment: Coal/Gas Mixture - CBI | | | | | |
| Run | Value | Unit of Measure | Target Low | Target High | Comment |
| 1 | 0 | lb/hr | 0 | 0 | CBI M29 |
| 2 | 0 | lb/hr | 0 | 0 | CBI M29 |
| 3 | 0 | lb/hr | 0 | 0 | CBI M29 |
| 4 | 0 | lb/hr | 0 | 0 | CBI M26A |
| 5 | 0 | lb/hr | 0 | 0 | CBI M26A |
| 6 | 0 | lb/hr | 0 | 0 | CBI M26A |
| 7 | 0 | lb/hr | 0 | 0 | |
| 8 | 0 | lb/hr | 0 | 0 | |
| 9 | 0 | lb/hr | 0 | 0 | |
| 10 | 0 | lb/hr | 0 | 0 | |
| 11 | 0 | lb/hr | 0 | 0 | |
| 12 | 0 | lb/hr | 0 | 0 | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

| Process: | | Bentonite Added (CG) | | | SCC: | |
|----------|-------|------------------------|------------|-------------|----------|--|
| Comment: | | Coal/Gas Mixture - CBI | | | | |
| Run | Value | Unit of Measure | Target Low | Target High | Comment | |
| 1 | 0 | lb/hr | 0 | 0 | CBI M29 | |
| 2 | 0 | lb/hr | 0 | 0 | CBI M29 | |
| 3 | 0 | lb/hr | 0 | 0 | CBI M29 | |
| 4 | 0 | lb/hr | 0 | 0 | CBI M26A | |
| 5 | 0 | lb/hr | 0 | 0 | CBI M26A | |
| 6 | 0 | lb/hr | 0 | 0 | CBI M26A | |
| 7 | 0 | lb/hr | 0 | 0 | | |
| 8 | 0 | lb/hr | 0 | 0 | | |
| 9 | 0 | lb/hr | 0 | 0 | | |
| 10 | 0 | lb/hr | 0 | 0 | | |
| 11 | 0 | lb/hr | 0 | 0 | | |
| 12 | 0 | lb/hr | 0 | 0 | | |
| Process: | | Bentonite Added (NG) | | | SCC: | |
| Comment: | | Natural Gas - CBI | | | | |
| Run | Value | Unit of Measure | Target Low | Target High | Comment | |
| 1 | 0 | lb/hr | 0 | 0 | | |
| 2 | 0 | lb/hr | 0 | 0 | | |
| 3 | 0 | lb/hr | 0 | 0 | | |
| 4 | 0 | lb/hr | 0 | 0 | | |
| 5 | 0 | lb/hr | 0 | 0 | | |
| 6 | 0 | lb/hr | 0 | 0 | | |
| 7 | 0 | lb/hr | 0 | 0 | CBI M29 | |
| 8 | 0 | lb/hr | 0 | 0 | CBI M29 | |
| 9 | 0 | lb/hr | 0 | 0 | CBI M29 | |
| 10 | 0 | lb/hr | 0 | 0 | CBI M26A | |
| 11 | 0 | lb/hr | 0 | 0 | CBI M26A | |
| 12 | 0 | lb/hr | 0 | 0 | CBI M26A | |

APCD Run Data

| APCD: | | SCRUBBER | | | |
|----------|-------|-----------------|--------------|---------|--|
| Comment: | | Coal/Gas | | | |
| Run | Value | Unit of Measure | Target Value | Comment | |
| 1 | 11.18 | in H2O (CG) | 10 | M29 | |
| 1 | 2391 | gpm (CG) | 2400 | M29 | |
| 1 | 0 | in H2O (NG) | 10 | | |
| 1 | 0 | gpm (NG) | 2400 | | |
| 2 | 2388 | gpm (CG) | 2400 | M29 | |
| 2 | 11.29 | in H2O (CG) | 10 | M29 | |
| 2 | 0 | gpm (NG) | 2400 | | |
| 2 | 0 | in H2O (NG) | 10 | | |
| 3 | 0 | gpm (NG) | 2400 | | |
| 3 | 11.26 | in H2O (CG) | 10 | M29 | |
| 3 | 0 | in H2O (NG) | 10 | | |

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| | | | | |
|----|-------|-------------|------|------|
| 3 | 2402 | gpm (CG) | 2400 | M29 |
| 4 | 11.19 | in H2O (CG) | 10 | M26A |
| 4 | 0 | gpm (NG) | 2400 | |
| 4 | 0 | in H2O (NG) | 10 | |
| 4 | 2391 | gpm (CG) | 2400 | M26A |
| 5 | 0 | in H2O (NG) | 10 | |
| 5 | 11.31 | in H2O (CG) | 10 | M26A |
| 5 | 0 | gpm (NG) | 2400 | |
| 5 | 2388 | gpm (CG) | 2400 | M26A |
| 6 | 0 | gpm (NG) | 2400 | |
| 6 | 0 | in H2O (NG) | 10 | |
| 6 | 11.26 | in H2O (CG) | 10 | M26A |
| 6 | 2401 | gpm (CG) | 2400 | M26A |
| 7 | 0 | gpm (CG) | 2400 | |
| 7 | 2407 | gpm (NG) | 2400 | M29 |
| 7 | 10.99 | in H2O (NG) | 10 | M29 |
| 7 | 0 | in H2O (CG) | 10 | |
| 8 | 0 | in H2O (CG) | 10 | |
| 8 | 10.99 | in H2O (NG) | 10 | M29 |
| 8 | 2408 | gpm (NG) | 2400 | M29 |
| 8 | 0 | gpm (CG) | 2400 | |
| 9 | 11.19 | in H2O (NG) | 10 | M29 |
| 9 | 0 | in H2O (CG) | 10 | |
| 9 | 0 | gpm (CG) | 2400 | |
| 9 | 2408 | gpm (NG) | 2400 | M29 |
| 10 | 2407 | gpm (NG) | 2400 | M26A |
| 10 | 11.05 | in H2O (NG) | 10 | M26A |
| 10 | 0 | gpm (CG) | 2400 | |
| 10 | 0 | in H2O (CG) | 10 | |
| 11 | 0 | gpm (CG) | 2400 | |
| 11 | 0 | in H2O (CG) | 10 | |
| 11 | 2408 | gpm (NG) | 2400 | M26A |
| 11 | 10.98 | in H2O (NG) | 10 | M26A |
| 12 | 0 | gpm (CG) | 2400 | |
| 12 | 11.17 | in H2O (NG) | 10 | M26A |
| 12 | 2408 | gpm (NG) | 2400 | M26A |
| 12 | 0 | in H2O (CG) | 10 | |

Process Lab Run Data

| Lab Analysis: binder | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------------|---------|
| Comment: This analysis is performed internally as part of normal operating procedure checks and are considered confidential business information. This information is not included during routine emissions reporting, but can be provided upon request. | | | |
| Run | Value | Unit of Measure | Comment |
| 1 | 0 | %soda ash | |

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| Lab Analysis: caustic Comment: Verify concentration - This analysis is performed internally as part of normal operating procedure checks and are considered confidential business information. This information is not included during routine emissions reporting, but can be provided upon request. | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------------|---------|
| Run | Value | Unit of Measure | Comment |
| 1 | 0 | % | |
| Lab Analysis: coal Comment: sizing - This analysis is performed internally as part of normal operating procedure checks and are considered confidential business information. This information is not included during routine emissions reporting, but can be provided upon request. | | | |
| Run | Value | Unit of Measure | Comment |
| 1 | 0 | % | |
| Lab Analysis: greenball crush Comment: This analysis is performed internally as part of normal operating procedure checks and are considered confidential business information. This information is not included during routine emissions reporting, but can be provided upon request. | | | |
| Run | Value | Unit of Measure | Comment |
| 1 | 0 | lbs | |
| Lab Analysis: Greenball moisture Comment: This analysis is performed internally as part of normal operating procedure checks and are considered confidential business information. This information is not included during routine emissions reporting, but can be provided upon request. | | | |
| Run | Value | Unit of Measure | Comment |
| 1 | 0 | %moisture | |
| Lab Analysis: pellets Comment: fines percentage - This analysis is performed internally as part of normal operating procedure checks and are considered confidential business information. This information is not included during routine emissions reporting, but can be provided upon request. | | | |
| Run | Value | Unit of Measure | Comment |
| 1 | 0 | % | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

Sampling / Stack Data Results Detail

| Location EU042/EQUI47 SV048/STRU16 CG - Method 10 | | | | |
|----------------------------------------------------|------------------|------------------|------------------|-------------------|
| | | | | Average |
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/15/2022 | 3/15/2022 | 3/16/2022 | |
| Run Start Time | 8:30:00 AM | 2:30:00 PM | 11:41:00 AM | |
| Run Finish Time | 11:45:00 AM | 5:19:00 PM | 2:34:00 PM | |
| Carbon Dioxide, % | 2.3353 | 2.2052 | 2.0525 | 2.198 |
| Oxygen, % | 17.4452 | 17.6475 | 17.5955 | 17.563 |
| Fuel Factor | 1.45 | 1.51 | 0 | |
| Dry Volumetric Flow Rate, dry scfm | 316961.7 | 295693.3 | 312318 | 308,324.333 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Moisture, % | 13.6169 | 13.8516 | 13.9219 | 13.797 |
| Analyzer Make | Thermo | Thermo | Thermo | |
| Analyzer Model | 48i | 48i | 48i | |
| Analyzer Serial Number | 1151040014 | 1151040014 | 1151040014 | 1,151,040,014.000 |
| Operating Range | 49.8 | 49.8 | 49.8 | 49.800 |
| Operating Units | ppm | ppm | ppm | |
| No. Readings/Avg. | 168 | 168 | 168 | 168.000 |
| Calibration Set | 10 | 10 | 11 | 10.333 |
| Calibration Pre Zero Cylinder ID | EB0098643 N2 | EB0098643 N2 | EB0098643 N2 | |
| Calibration Pre Zero Cylinder Instrument Response | 0 | 0 | 0.1 | 0.033 |
| Calibration Pre Zero Cylinder Bias | 0 | 0 | 0.2 | 0.067 |
| Calibration Pre Zero Cylinder Drift | 0 | 0 | 0 | 0.000 |
| Calibration Pre High Cylinder ID | EB0097780 CO MID | EB0097780 CO MID | EB0097780 CO MID | |
| Calibration Pre High Cylinder Instrument Response | 22.8 | 22.7 | 22.7 | 22.733 |
| Calibration Pre High Cylinder Bias | -0.2 | -0.4 | -0.4 | -0.333 |
| Calibration Pre High Cylinder Drift | 0 | 0 | 0 | 0.000 |
| Calibration Post Zero Cylinder ID | EB0098643 N2 | EB0098643 N2 | EB0098643 N2 | |
| Calibration Post Zero Cylinder Instrument Response | 0 | 0 | 0.1 | 0.033 |
| Calibration Post Zero Cylinder Bias | 0 | 0 | 0.2 | 0.067 |
| Calibration Post Zero Cylinder Drift | 0 | 0 | 0 | 0.000 |
| Calibration Post High Cylinder ID | EB0097780 CO MID | EB0097780 CO MID | EB0097780 CO MID | |
| Calibration Post High Cylinder Instrument Response | 22.7 | 22.6 | 22.7 | 22.667 |
| Calibration Post High Cylinder Bias | -0.4 | -0.6 | -0.4 | -0.467 |
| Calibration Post High Cylinder Drift | 0.2 | 0.2 | 0 | 0.133 |
| Cavg | 10.14 | 9.4 | 9.4 | 9.647 |
| Cavg Units | ppmvd | ppmvd | ppmvd | |
| Cgas | 10.296 | 9.5868 | 9.5058 | 9.796 |

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| Cgas Units | ppmvd | ppmvd | ppmvd | |
|-------------|-------|-------|-------|-------|
| Fuel Type | | | | |
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |
| Cgasw | 0 | 0 | 0 | 0.000 |
| Cgasw Units | | | | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

Location EU042/EQUI47 SV048/STRU16 CG - Method 26A

| | | | | Average |
|-------------------------------------------------|-------------|------------|-------------|----------------|
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/15/2022 | 3/15/2022 | 3/16/2022 | |
| Run Start Time | 8:31:00 AM | 2:25:00 PM | 11:41:00 AM | |
| Run Finish Time | 10:55:00 AM | 4:37:00 PM | 1:49:00 PM | |
| Net Traversing Points | 24 | 24 | 24 | |
| Net Run Time, minutes | 120 | 120 | 120 | |
| Nozzle Diameter, inches | 0.217 | 0.217 | 0.217 | 0.217 |
| Pitot Tube Coefficient | 0.84 | 0.84 | 0.84 | 0.840 |
| Dry Gas Meter Calibration Factor | 0.9925 | 0.9925 | 0.9925 | 0.993 |
| Barometric Pressure, inches of Mercury | 28.6 | 28.6 | 28.3 | 28.500 |
| Average Orifice Meter Differential, inches H2O | 1.52 | 1.59 | 1.62 | 1.577 |
| Dry Gas Meter Volume Sampled, cubic feet | 80.710 | 84.220 | 84.980 | 83.303 |
| Average Dry Gas Meter Temperature, °F | 48.19 | 69.96 | 59.46 | 59.203 |
| Dry Gas Meter Volume Sampled, dscf | 79.868 | 79.930 | 81.430 | 80.409 |
| Total Moisture Liquid collected, g | 272.9 | 275.0 | 305.9 | 284.600 |
| Volume of Water Vapor, standard cubic feet | 12.869 | 12.968 | 14.425 | 13.421 |
| Moisture Content of Stack Gas, % | 13.8769 | 13.9594 | 15.0488 | 14.295 |
| Moisture Saturation at Stack Gas Temperature, % | 21.08 | 21.95 | 21.64 | 21.557 |
| Dry Mole Fraction | 0.8612 | 0.8604 | 0.8495 | 0.857 |
| Carbon Dioxide, % | 2.3353 | 2.2052 | 2.0525 | 2.198 |
| Oxygen, % | 17.4452 | 17.6475 | 17.5955 | 17.563 |
| Carbon Monoxide & Nitrogen, % | 80.2195 | 80.1473 | 80.352 | 80.240 |
| Fuel Factor | 1.48 | 1.47 | 1.61 | |
| Dry Molecular Weight, lb/lb-Mole | 29.0715 | 29.0587 | 29.0322 | 29.054 |
| Wet Molecular weight, lb/lb-Mole | 27.5363 | 27.5169 | 27.3739 | 27.476 |
| Flue Gas Static Pressure, inches of H2O | -0.76 | -0.76 | -0.76 | -0.760 |
| Absolute Flue Gas Pressure, inches of Mercury | 28.54 | 28.54 | 28.24 | 28.440 |
| Average Stack Gas Temperature, °F | 140.96 | 142.54 | 141.58 | 141.693 |
| Square Root of Average Velocity, inches of H2O | 0.9419 | 0.9569 | 0.9653 | 0.955 |
| Average Stack Gas Velocity, feet/second | 59.14 | 60.18 | 61.14 | 60.153 |
| Stack Cross-Sectional Area, square feet | 117.86 | 117.86 | 117.86 | 117.860 |
| Dry Volumetric Flow Rate, dry scfm | 301,821.9 | 306,039.2 | 304,240.4 | 304,033.833 |
| Actual Wet Volumetric Flue Gas Flow Rate, acfm | 418,214.4 | 425,568.9 | 432,357.6 | 425,380.300 |
| Percent Isokinetic of Sampling Rate, % | 101.2 | 99.9 | 102.4 | 101.167 |
| Percent Excess Air, % | 467.4 | 502.6 | 486.4 | 485.467 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Round Duct Diameter, inches | 147 | 147 | 147 | |
| Rectangular Duct Width, inches | | | | |
| Rectangular Duct Length, inches | | | | |

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| | | | | |
|----|---|---|---|-------|
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

Location EU042/EQUI47 SV048/STRU16 CG - Method 29

| | | | | Average |
|-------------------------------------------------|-------------|------------|-------------|----------------|
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/15/2022 | 3/15/2022 | 3/16/2022 | |
| Run Start Time | 8:30:00 AM | 2:23:00 PM | 11:41:00 AM | |
| Run Finish Time | 11:45:00 AM | 5:19:00 PM | 2:34:00 PM | |
| Net Traversing Points | 24 | 24 | 24 | |
| Net Run Time, minutes | 168 | 168 | 168 | |
| Nozzle Diameter, inches | 0.218 | 0.218 | 0.218 | 0.218 |
| Pitot Tube Coefficient | 0.84 | 0.84 | 0.84 | 0.840 |
| Dry Gas Meter Calibration Factor | 0.9984 | 0.9984 | 0.9984 | 0.998 |
| Barometric Pressure, inches of Mercury | 28.6 | 28.6 | 28.3 | 28.500 |
| Average Orifice Meter Differential, inches H2O | 1.77 | 1.57 | 1.77 | 1.703 |
| Dry Gas Meter Volume Sampled, cubic feet | 118.710 | 113.710 | 121.450 | 117.957 |
| Average Dry Gas Meter Temperature, °F | 46.25 | 64.50 | 55.96 | 55.570 |
| Dry Gas Meter Volume Sampled, dscf | 118.699 | 109.685 | 117.908 | 115.431 |
| Total Moisture Liquid collected, g | 396.8 | 374.0 | 404.4 | 391.733 |
| Volume of Water Vapor, standard cubic feet | 18.711 | 17.636 | 19.070 | 18.472 |
| Moisture Content of Stack Gas, % | 13.6169 | 13.8516 | 13.9219 | 13.797 |
| Moisture Saturation at Stack Gas Temperature, % | 22.04 | 22.00 | 22.14 | 22.060 |
| Dry Mole Fraction | 0.8638 | 0.8615 | 0.8608 | 0.862 |
| Carbon Dioxide, % | 2.3353 | 2.2052 | 2.0525 | 2.198 |
| Oxygen, % | 17.4452 | 17.6475 | 17.5955 | 17.563 |
| Carbon Monoxide & Nitrogen, % | 80.2195 | 80.1473 | 80.352 | 80.240 |
| Fuel Factor | 1.48 | 1.47 | 1.61 | |
| Dry Molecular Weight, lb/lb-Mole | 29.0715 | 29.0587 | 29.0322 | 29.054 |
| Wet Molecular weight, lb/lb-Mole | 27.5650 | 27.5294 | 27.4989 | 27.531 |
| Flue Gas Static Pressure, inches of H2O | -0.76 | -0.76 | -0.76 | -0.760 |
| Absolute Flue Gas Pressure, inches of Mercury | 28.54 | 28.54 | 28.24 | 28.440 |
| Average Stack Gas Temperature, °F | 142.71 | 142.63 | 142.46 | 142.600 |
| Square Root of Average Velocity, inches of H2O | 0.9882 | 0.9238 | 0.9810 | 0.964 |
| Average Stack Gas Velocity, feet/second | 62.10 | 58.08 | 62.03 | 60.737 |
| Stack Cross-Sectional Area, square feet | 117.86 | 117.86 | 117.86 | 117.860 |
| Dry Volumetric Flow Rate, dry scfm | 316,961.7 | 295,693.3 | 312,318.0 | 308,324.333 |
| Actual Wet Volumetric Flue Gas Flow Rate, acfm | 439,146.4 | 410,718.5 | 438,651.3 | 429,505.400 |
| Percent Isokinetic of Sampling Rate, % | 101.4 | 100.4 | 102.2 | 101.333 |
| Percent Excess Air, % | 467.4 | 502.6 | 486.4 | 485.467 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Round Duct Diameter, inches | 147 | 147 | 147 | |
| Rectangular Duct Width, inches | | | | |
| Rectangular Duct Length, inches | | | | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

| | | | | |
|----|---|---|---|-------|
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

| Location EU042/EQUI47 SV048/STRU16 CG - Method 3A CO2 | | | | |
|-------------------------------------------------------|----------------------|----------------------|----------------------|-------------|
| | | | | Average |
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/15/2022 | 3/15/2022 | 3/16/2022 | |
| Run Start Time | 8:31:00 AM | 2:25:00 PM | 11:41:00 AM | |
| Run Finish Time | 10:55:00 AM | 4:37:00 PM | 1:49:00 PM | |
| Carbon Dioxide, % | 2.3353 | 2.2052 | 2.0525 | 2.198 |
| Oxygen, % | 17.4452 | 17.6475 | 17.5955 | 17.563 |
| Fuel Factor | 0 | 0 | 0 | |
| Dry Volumetric Flow Rate, dry scfm | 316961.7 | 295693.3 | 312318 | 308,324.333 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Moisture, % | 13.6169 | 13.8516 | 13.9219 | 13.797 |
| Analyzer Make | API | API | API | |
| Analyzer Model | O2-11 | O2-11 | O2-11 | |
| Analyzer Serial Number | | | | |
| Operating Range | 9.5 | 9.5 | 9.5 | 9.500 |
| Operating Units | % | % | % | |
| No. Readings/Avg. | 168 | 168 | 168 | 168.000 |
| Calibration Set | 4 | 4 | 5 | 4.333 |
| Calibration Pre Zero Cylinder ID | EB0098643 N2 | EB0098643 N2 | EB0098643 N2 | |
| Calibration Pre Zero Cylinder Instrument Response | 0 | 0.1 | 0 | 0.033 |
| Calibration Pre Zero Cylinder Bias | 0 | 1.05 | 0 | 0.350 |
| Calibration Pre Zero Cylinder Drift | 0 | 0 | 0 | 0.000 |
| Calibration Pre High Cylinder ID | EB0097775 CO2 MID | EB0097775 CO2 MID | EB0097775 CO2 MID | |
| Calibration Pre High Cylinder Instrument Response | 4.8 | 4.7 | 5 | 4.833 |
| Calibration Pre High Cylinder Bias | -1.05 | -2.11 | 0 | -1.053 |
| Calibration Pre High Cylinder Drift | 0 | 0 | 0 | 0.000 |
| Calibration Post Zero Cylinder ID | EB0098643 N2 | EB0098643 N2 | EB0098643 N2 | |
| Calibration Post Zero Cylinder Instrument Response | 0 | 0 | 0.1 | 0.033 |
| Calibration Post Zero Cylinder Bias | 0 | 0 | 1.05 | 0.350 |
| Calibration Post Zero Cylinder Drift | 0 | 1.05 | 1.05 | 0.700 |
| Calibration Post High Cylinder ID | EB0097775 CO2 MID | EB0097775 CO2 MID | EB0097775 CO2 MID | |
| Calibration Post High Cylinder Instrument Response | 4.7 | 4.7 | 4.9 | 4.767 |
| Calibration Post High Cylinder Bias | -2.11 | -2.11 | -1.05 | -1.757 |
| Calibration Post High Cylinder Drift | 1.06 | 0 | 1.05 | 0.703 |
| Cavg | 2.25 | 2.13 | 2.09 | 2.157 |
| Cavg Units | %vd | %vd | %vd | |
| Cgas | 2.3353 | 2.2052 | 2.0525 | 2.198 |
| Cgas Units | %vd | %vd | %vd | |
| Fuel Type | | | | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

| | | | | |
|-------------|---|---|---|-------|
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |
| Cgasw | 0 | 0 | 0 | 0.000 |
| Cgasw Units | | | | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

Location EU042/EQUI47 SV048/STRU16 CG - Method 3A O2

| | | | | Average |
|----------------------------------------------------|----------------------|----------------------|----------------------|---------|
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/15/2022 | 3/15/2022 | 3/16/2022 | |
| Run Start Time | 8:31:00 AM | 2:30:00 PM | 11:41:00 AM | |
| Run Finish Time | 11:45:00 AM | 5:19:00 PM | 1:49:00 PM | |
| Carbon Dioxide, % | 0 | 0 | 0 | 0.000 |
| Oxygen, % | 17.4452 | 17.6475 | 17.5955 | 17.563 |
| Fuel Factor | 0 | 0 | 0 | |
| Dry Volumetric Flow Rate, dry scfm | 0 | 0 | 0 | 0.000 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Moisture, % | 0 | 0 | 0 | 0.000 |
| Analyzer Make | API | API | API | |
| Analyzer Model | O2-11 | O2-11 | O2-11 | |
| Analyzer Serial Number | | | | |
| Operating Range | 22.5 | 22.5 | 22.5 | 22.500 |
| Operating Units | % | % | % | |
| No. Readings/Avg. | 168 | 168 | 168 | 168.000 |
| Calibration Set | 1 | 1 | 2 | 1.333 |
| Calibration Pre Zero Cylinder ID | EB0098643 N2 | EB0098643 N2 | EB0098643 N2 | |
| Calibration Pre Zero Cylinder Instrument Response | 0.1 | 0.1 | 0.1 | 0.100 |
| Calibration Pre Zero Cylinder Bias | 0.44 | 0.44 | 0.44 | 0.440 |
| Calibration Pre Zero Cylinder Drift | 0 | 0 | 0 | 0.000 |
| Calibration Pre High Cylinder ID | EB0097775 O2 HIGH | EB0097775 O2 HIGH | EB0097775 O2 HIGH | |
| Calibration Pre High Cylinder Instrument Response | 22.1 | 21.8 | 22.3 | 22.067 |
| Calibration Pre High Cylinder Bias | -1.33 | -2.67 | -0.89 | -1.630 |
| Calibration Pre High Cylinder Drift | 0 | 0 | 0 | 0.000 |
| Calibration Post Zero Cylinder ID | EB0098643 N2 | EB0098643 N2 | EB0098643 N2 | |
| Calibration Post Zero Cylinder Instrument Response | 0.1 | 0.1 | 0.1 | 0.100 |
| Calibration Post Zero Cylinder Bias | 0.44 | 0.44 | 0.44 | 0.440 |
| Calibration Post Zero Cylinder Drift | 0 | 0 | 0 | 0.000 |
| Calibration Post High Cylinder ID | EB0097775 O2 HIGH | EB0097775 O2 HIGH | EB0097775 O2 HIGH | |
| Calibration Post High Cylinder Instrument Response | 21.9 | 21.8 | 22.4 | 22.033 |
| Calibration Post High Cylinder Bias | -2.22 | -2.67 | -0.44 | -1.777 |
| Calibration Post High Cylinder Drift | 0.89 | 0 | 0.45 | 0.447 |
| Cavg | 17.08 | 17.12 | 17.5 | 17.233 |
| Cavg Units | %vd | %vd | %vd | |
| Cgas | 17.4452 | 17.6475 | 17.5955 | 17.563 |
| Cgas Units | %vd | %vd | %vd | |
| Fuel Type | | | | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

| | | | | |
|-------------|---|---|---|-------|
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |
| Cgasw | 0 | 0 | 0 | 0.000 |
| Cgasw Units | | | | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

Location EU042/EQUI47 SV048/STRU16 NG - Method 10

| | | | | Average |
|----------------------------------------------------|---------------------|---------------------|---------------------|-----------------------|
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/16/2022 | 3/17/2022 | 3/17/2022 | |
| Run Start Time | 3:51:00 PM | 8:37:00 AM | 11:55:00 AM | |
| Run Finish Time | 5:57:00 PM | 10:43:00 AM | 2:34:00 PM | |
| Carbon Dioxide, % | 1.5552 | 1.5875 | 1.5776 | 1.573 |
| Oxygen, % | 17.9096 | 17.8184 | 17.8483 | 17.859 |
| Fuel Factor | 0 | 0 | 0 | |
| Dry Volumetric Flow Rate, dry scfm | 305472.6 | 305851.9 | 301882.3 | 304,402.267 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Moisture, % | 13.9034 | 13.914 | 13.9713 | 13.930 |
| Analyzer Make | Thermo | Thermo | Thermo | |
| Analyzer Model | 48i | 48i | 48i | |
| Analyzer Serial Number | 1151040014 | 1151040014 | 1151040014 | 1,151,040,0 14.000 |
| Operating Range | 49.8 | 49.8 | 49.8 | 49.800 |
| Operating Units | ppm | ppm | ppm | |
| No. Readings/Avg. | 168 | 168 | 168 | 168.000 |
| Calibration Set | 11 | 12 | 12 | 11.667 |
| Calibration Pre Zero Cylinder ID | EB0098643 N2 | EB0098643 N2 | EB0098643 N2 | |
| Calibration Pre Zero Cylinder Instrument Response | 0.1 | 0 | 0 | 0.033 |
| Calibration Pre Zero Cylinder Bias | 0.2 | 0 | 0 | 0.067 |
| Calibration Pre Zero Cylinder Drift | 0 | 0 | 0 | 0.000 |
| Calibration Pre High Cylinder ID | EB0097780 CO MID | EB0097780 CO MID | EB0097780 CO MID | |
| Calibration Pre High Cylinder Instrument Response | 22.7 | 22.8 | 22.8 | 22.767 |
| Calibration Pre High Cylinder Bias | -0.4 | -0.4 | -0.4 | -0.400 |
| Calibration Pre High Cylinder Drift | 0 | 0 | 0 | 0.000 |
| Calibration Post Zero Cylinder ID | EB0098643 N2 | EB0098643 N2 | EB0098643 N2 | |
| Calibration Post Zero Cylinder Instrument Response | 0 | 0 | 0 | 0.000 |
| Calibration Post Zero Cylinder Bias | 0 | 0 | 0 | 0.000 |
| Calibration Post Zero Cylinder Drift | 0.2 | 0 | 0 | 0.067 |
| Calibration Post High Cylinder ID | EB0097780 CO MID | EB0097780 CO MID | EB0097780 CO MID | |
| Calibration Post High Cylinder Instrument Response | 22.7 | 22.8 | 22.7 | 22.733 |
| Calibration Post High Cylinder Bias | -0.4 | -0.4 | -0.6 | -0.467 |
| Calibration Post High Cylinder Drift | 0 | 0 | 0.2 | 0.067 |
| Cavg | 8.17 | 7.95 | 7.93 | 8.017 |
| Cavg Units | ppmvd | ppmvd | ppmvd | |
| Cgas | 8.2813 | 8.0546 | 8.052 | 8.129 |
| Cgas Units | ppmvd | ppmvd | ppmvd | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

| | | | | |
|-------------|---|---|---|-------|
| Fuel Type | | | | |
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |
| Cgasw | 0 | 0 | 0 | 0.000 |
| Cgasw Units | | | | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

| Location EU042/EQUI47 SV048/STRU16 NG - Method 26A | | | | |
|----------------------------------------------------|------------|-------------|-------------|-------------|
| | | | | Average |
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/16/2022 | 3/17/2022 | 3/17/2022 | |
| Run Start Time | 3:51:00 PM | 8:37:00 AM | 11:55:00 AM | |
| Run Finish Time | 5:57:00 PM | 10:43:00 AM | 2:34:00 PM | |
| Net Traversing Points | 24 | 24 | 24 | |
| Net Run Time, minutes | 120 | 120 | 120 | |
| Nozzle Diameter, inches | 0.217 | 0.217 | 0.217 | 0.217 |
| Pitot Tube Coefficient | 0.84 | 0.84 | 0.84 | 0.840 |
| Dry Gas Meter Calibration Factor | 0.9925 | 0.9925 | 0.9925 | 0.993 |
| Barometric Pressure, inches of Mercury | 28.3 | 28.45 | 28.45 | 28.400 |
| Average Orifice Meter Differential, inches H2O | 1.61 | 1.61 | 1.59 | 1.603 |
| Dry Gas Meter Volume Sampled, cubic feet | 86.370 | 83.990 | 80.720 | 83.693 |
| Average Dry Gas Meter Temperature, °F | 74.08 | 56.00 | 62.85 | 64.310 |
| Dry Gas Meter Volume Sampled, dscf | 80.493 | 81.447 | 77.245 | 79.728 |
| Total Moisture Liquid collected, g | 280.9 | 277.7 | 284.2 | 280.933 |
| Volume of Water Vapor, standard cubic feet | 13.246 | 13.095 | 13.402 | 13.248 |
| Moisture Content of Stack Gas, % | 14.1307 | 13.8510 | 14.7848 | 14.256 |
| Moisture Saturation at Stack Gas Temperature, % | 22.25 | 21.76 | 22.02 | 22.010 |
| Dry Mole Fraction | 0.8587 | 0.8615 | 0.8522 | 0.857 |
| Carbon Dioxide, % | 1.5552 | 1.5875 | 1.5776 | 1.573 |
| Oxygen, % | 17.9096 | 17.8184 | 17.8483 | 17.859 |
| Carbon Monoxide & Nitrogen, % | 80.5352 | 80.5941 | 80.5741 | 80.568 |
| Fuel Factor | 1.92 | 1.94 | 1.93 | |
| Dry Molecular Weight, lb/lb-Mole | 28.9652 | 28.9667 | 28.9663 | 28.966 |
| Wet Molecular weight, lb/lb-Mole | 27.4181 | 27.4501 | 27.3486 | 27.406 |
| Flue Gas Static Pressure, inches of H2O | -0.76 | -0.76 | -0.76 | -0.760 |
| Absolute Flue Gas Pressure, inches of Mercury | 28.24 | 28.39 | 28.39 | 28.340 |
| Average Stack Gas Temperature, °F | 142.67 | 142.00 | 142.46 | 142.377 |
| Square Root of Average Velocity, inches of H2O | 0.9587 | 0.9671 | 0.9628 | 0.963 |
| Average Stack Gas Velocity, feet/second | 60.72 | 61.02 | 60.89 | 60.877 |
| Stack Cross-Sectional Area, square feet | 117.86 | 117.86 | 117.86 | 117.860 |
| Dry Volumetric Flow Rate, dry scfm | 304,870.0 | 309,352.1 | 305,127.3 | 306,449.800 |
| Actual Wet Volumetric Flue Gas Flow Rate, acfm | 429,387.6 | 431,509.0 | 430,589.7 | 430,495.433 |
| Percent Isokinetic of Sampling Rate, % | 101.0 | 100.7 | 96.8 | 99.500 |
| Percent Excess Air, % | 534.3 | 515.2 | 521.4 | 523.633 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Round Duct Diameter, inches | 147 | 147 | 147 | |
| Rectangular Duct Width, inches | | | | |
| Rectangular Duct Length, inches | | | | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

| | | | | |
|----|---|---|---|-------|
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

Location EU042/EQUI47 SV048/STRU16 NG - Method 29

| | | | | Average |
|-------------------------------------------------|------------|-------------|-------------|-------------|
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/16/2022 | 3/17/2022 | 3/17/2022 | |
| Run Start Time | 3:51:00 PM | 8:37:00 AM | 11:55:00 AM | |
| Run Finish Time | 6:47:00 PM | 11:29:00 AM | 3:30:00 PM | |
| Net Traversing Points | 24 | 24 | 24 | |
| Net Run Time, minutes | 168 | 168 | 168 | |
| Nozzle Diameter, inches | 0.218 | 0.218 | 0.218 | 0.218 |
| Pitot Tube Coefficient | 0.84 | 0.84 | 0.84 | 0.840 |
| Dry Gas Meter Calibration Factor | 0.9984 | 0.9984 | 0.9984 | 0.998 |
| Barometric Pressure, inches of Mercury | 28.3 | 28.45 | 28.45 | 28.400 |
| Average Orifice Meter Differential, inches H2O | 1.70 | 1.66 | 1.62 | 1.660 |
| Dry Gas Meter Volume Sampled, cubic feet | 120.200 | 116.300 | 115.290 | 117.263 |
| Average Dry Gas Meter Temperature, °F | 69.13 | 51.54 | 57.92 | 59.530 |
| Dry Gas Meter Volume Sampled, dscf | 113.768 | 114.453 | 112.049 | 113.423 |
| Total Moisture Liquid collected, g | 389.6 | 392.3 | 385.9 | 389.267 |
| Volume of Water Vapor, standard cubic feet | 18.372 | 18.499 | 18.197 | 18.356 |
| Moisture Content of Stack Gas, % | 13.9034 | 13.9140 | 13.9713 | 13.930 |
| Moisture Saturation at Stack Gas Temperature, % | 21.88 | 22.37 | 22.16 | 22.137 |
| Dry Mole Fraction | 0.8610 | 0.8609 | 0.8603 | 0.861 |
| Carbon Dioxide, % | 1.5552 | 1.5875 | 1.5776 | 1.573 |
| Oxygen, % | 17.9096 | 17.8184 | 17.8483 | 17.859 |
| Carbon Monoxide & Nitrogen, % | 80.5352 | 80.5941 | 80.5741 | 80.568 |
| Fuel Factor | 1.92 | 1.94 | 1.93 | |
| Dry Molecular Weight, lb/lb-Mole | 28.9652 | 28.9667 | 28.9663 | 28.966 |
| Wet Molecular weight, lb/lb-Mole | 27.4437 | 27.4440 | 27.4366 | 27.441 |
| Flue Gas Static Pressure, inches of H2O | -0.76 | -0.76 | -0.76 | -0.760 |
| Absolute Flue Gas Pressure, inches of Mercury | 28.24 | 28.39 | 28.39 | 28.340 |
| Average Stack Gas Temperature, °F | 142.00 | 143.08 | 142.71 | 142.597 |
| Square Root of Average Velocity, inches of H2O | 0.9580 | 0.9575 | 0.9454 | 0.954 |
| Average Stack Gas Velocity, feet/second | 60.61 | 60.48 | 59.70 | 60.263 |
| Stack Cross-Sectional Area, square feet | 117.86 | 117.86 | 117.86 | 117.860 |
| Dry Volumetric Flow Rate, dry scfm | 305,472.6 | 305,851.9 | 301,882.3 | 304,402.267 |
| Actual Wet Volumetric Flue Gas Flow Rate, acfm | 428,609.7 | 427,690.4 | 422,174.5 | 426,158.200 |
| Percent Isokinetic of Sampling Rate, % | 100.8 | 101.3 | 100.5 | 100.867 |
| Percent Excess Air, % | 534.3 | 515.2 | 521.4 | 523.633 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Round Duct Diameter, inches | 147 | 147 | 147 | |
| Rectangular Duct Width, inches | | | | |
| Rectangular Duct Length, inches | | | | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

| | | | | |
|----|---|---|---|-------|
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

| Location EU042/EQUI47 SV048/STRU16 NG - Method 3A CO2 | | | | |
|-------------------------------------------------------|----------------------|----------------------|----------------------|-------------|
| | | | | Average |
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/16/2022 | 3/17/2022 | 3/17/2022 | |
| Run Start Time | 3:51:00 PM | 8:37:00 AM | | |
| Run Finish Time | 5:57:00 PM | 10:43:00 AM | | |
| Carbon Dioxide, % | 1.5552 | 1.5875 | 1.5776 | 1.573 |
| Oxygen, % | 17.9096 | 17.8184 | 17.8483 | 17.859 |
| Fuel Factor | 0 | 0 | 0 | |
| Dry Volumetric Flow Rate, dry scfm | 305472.6 | 305851.9 | 301882.3 | 304,402.267 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Moisture, % | 13.9034 | 13.914 | 13.9713 | 13.930 |
| Analyzer Make | API | API | API | |
| Analyzer Model | O2-11 | O2-11 | O2-11 | |
| Analyzer Serial Number | | | | |
| Operating Range | 9.5 | 9.5 | 9.5 | 9.500 |
| Operating Units | % | % | % | |
| No. Readings/Avg. | 168 | 168 | 168 | 168.000 |
| Calibration Set | 5 | 6 | 6 | 5.667 |
| Calibration Pre Zero Cylinder ID | EB0098643 N2 | EB0098643 N2 | EB0098643 N2 | |
| Calibration Pre Zero Cylinder Instrument Response | 0.1 | 0 | 0 | 0.033 |
| Calibration Pre Zero Cylinder Bias | 1.05 | 0 | 0 | 0.350 |
| Calibration Pre Zero Cylinder Drift | 0 | 0 | 0 | 0.000 |
| Calibration Pre High Cylinder ID | EB0097775 CO2 MID | EB0097775 CO2 MID | EB0097775 CO2 MID | |
| Calibration Pre High Cylinder Instrument Response | 4.9 | 5 | 5 | 4.967 |
| Calibration Pre High Cylinder Bias | -1.05 | 0 | 0 | -0.350 |
| Calibration Pre High Cylinder Drift | 0 | 0 | 0 | 0.000 |
| Calibration Post Zero Cylinder ID | EB0098643 N2 | EB0098643 N2 | EB0098643 N2 | |
| Calibration Post Zero Cylinder Instrument Response | 0.1 | 0 | 0 | 0.033 |
| Calibration Post Zero Cylinder Bias | 1.05 | 0 | 0 | 0.350 |
| Calibration Post Zero Cylinder Drift | 0 | 0 | 0 | 0.000 |
| Calibration Post High Cylinder ID | EB0097775 CO2 MID | EB0097775 CO2 MID | EB0097775 CO2 MID | |
| Calibration Post High Cylinder Instrument Response | 5 | 5 | 5 | 5.000 |
| Calibration Post High Cylinder Bias | 0 | 0 | 0 | 0.000 |
| Calibration Post High Cylinder Drift | 1.05 | 0 | 0 | 0.350 |
| Cavg | 1.63 | 1.61 | 1.6 | 1.613 |
| Cavg Units | %vd | %vd | %vd | |
| Cgas | 1.5552 | 1.5875 | 1.5776 | 1.573 |
| Cgas Units | %vd | %vd | %vd | |
| Fuel Type | | | | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

| | | | | |
|-------------|---|---|---|-------|
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |
| Cgasw | 0 | 0 | 0 | 0.000 |
| Cgasw Units | | | | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

Location EU042/EQUI47 SV048/STRU16 NG - Method 3A O2

| | | | | Average |
|----------------------------------------------------|----------------------|----------------------|----------------------|---------|
| Run Number | 1 | 2 | 3 | |
| Test Date | 3/16/2022 | 3/17/2022 | 3/17/2022 | |
| Run Start Time | | 8:37:00 AM | 11:55:00 AM | |
| Run Finish Time | | 10:43:00 AM | 2:34:00 PM | |
| Carbon Dioxide, % | 0 | 0 | 0 | 0.000 |
| Oxygen, % | 17.9096 | 17.8184 | 17.8483 | 17.859 |
| Fuel Factor | 0 | 0 | 0 | |
| Dry Volumetric Flow Rate, dry scfm | 0 | 0 | 0 | 0.000 |
| F-Factor, dscfm/MMBtu @ %O2 | 0 | 0 | 0 | 0.000 |
| Moisture, % | 0 | 0 | 0 | 0.000 |
| Analyzer Make | API | API | API | |
| Analyzer Model | O2-11 | O2-11 | O2-11 | |
| Analyzer Serial Number | | | | |
| Operating Range | 22.5 | 22.5 | 22.5 | 22.500 |
| Operating Units | % | % | % | |
| No. Readings/Avg. | 168 | 168 | 168 | 168.000 |
| Calibration Set | 2 | 3 | 3 | 2.667 |
| Calibration Pre Zero Cylinder ID | EB0098643 N2 | EB0098643 N2 | EB0098643 N2 | |
| Calibration Pre Zero Cylinder Instrument Response | 0.1 | 0.1 | 0.1 | 0.100 |
| Calibration Pre Zero Cylinder Bias | 0.44 | 0.44 | 0.44 | 0.440 |
| Calibration Pre Zero Cylinder Drift | 0 | 0 | 0 | 0.000 |
| Calibration Pre High Cylinder ID | EB0097775 O2 HIGH | EB0097775 O2 HIGH | EB0097775 O2 HIGH | |
| Calibration Pre High Cylinder Instrument Response | 22.4 | 22.4 | 22.4 | 22.400 |
| Calibration Pre High Cylinder Bias | -0.44 | -0.89 | -0.89 | -0.740 |
| Calibration Pre High Cylinder Drift | 0 | 0 | 0 | 0.000 |
| Calibration Post Zero Cylinder ID | EB0098643 N2 | EB0098643 N2 | EB0098643 N2 | |
| Calibration Post Zero Cylinder Instrument Response | 0.1 | 0.1 | 0.1 | 0.100 |
| Calibration Post Zero Cylinder Bias | 0.44 | 0.44 | 0.44 | 0.440 |
| Calibration Post Zero Cylinder Drift | 0 | 0 | 0 | 0.000 |
| Calibration Post High Cylinder ID | EB0097775 O2 HIGH | EB0097775 O2 HIGH | EB0097775 O2 HIGH | |
| Calibration Post High Cylinder Instrument Response | 22.6 | 22.4 | 22.3 | 22.433 |
| Calibration Post High Cylinder Bias | 0.44 | -0.89 | -1.33 | -0.593 |
| Calibration Post High Cylinder Drift | 0.88 | 0 | 0.44 | 0.440 |
| Cavg | 17.93 | 17.76 | 17.75 | 17.813 |
| Cavg Units | %vd | %vd | %vd | |
| Cgas | 17.9096 | 17.8184 | 17.8483 | 17.859 |
| Cgas Units | %vd | %vd | %vd | |
| Fuel Type | | | | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

| | | | | |
|-------------|---|---|---|-------|
| Fw | 0 | 0 | 0 | 0.000 |
| Fc | 0 | 0 | 0 | 0.000 |
| Cgasw | 0 | 0 | 0 | 0.000 |
| Cgasw Units | | | | |

United Taconite Line 2 Pellet Induration Furnace 2A ICR

Included Attachments:

| Attachments | |
|-------------------------------------------------------------------|---------------------------------------|
| Source/Process Flow Diagram | Test Ports L2A WGS SV048.pdf |
| EPA Method 1Location Supporting Documentation (Item 9) (optional) | Test Ports L2A WGS SV048.pdf |
| EPA Method 1Location Supporting Documentation (Item 9) (optional) | Traverse Points L2A WGS SV048.pdf |
| Cyclonic Flow Absence Supporting Documentation (Item 10) | Historc Cyclonic L2A WGS 10-24-16.pdf |
| Pre-Test Meter Boxes/DGMs Calibrations | C-8 3-8-2022 0.9925.pdf |
| Pre-Test Meter Boxes/DGMs Calibrations | C-15 3-8-2022 1.0023.pdf |
| Post-Test Meter Boxes/DGMs Calibrations | All post test cals.pdf |
| Nozzles Calibrations | M26A Nozzle Cal T1, T2.pdf |
| Nozzles Calibrations | Metals Nozzle Cal T1, T2.pdf |
| Pitots Calibrations | 4-4.pdf |
| Pitots Calibrations | 5-8.pdf |
| Pitots Calibrations | 4-3.pdf |
| Thermocouples Calibrations | 4-4.pdf |
| Thermocouples Calibrations | 5-8.pdf |
| Thermocouples Calibrations | C-8-I.pdf |
| Thermocouples Calibrations | C-8-O.pdf |
| Thermocouples Calibrations | C-15-O.pdf |
| Thermocouples Calibrations | TIO-4449.pdf |
| Thermocouples Calibrations | TIO-8062.pdf |
| Thermocouples Calibrations | C-8.pdf |
| Thermocouples Calibrations | C-15.pdf |
| Thermocouples Calibrations | 4-3.pdf |
| Sampling Locations Dimensions and Point Locations | Test Ports L2A WGS SV048.pdf |
| Sampling Locations Dimensions and Point Locations | Traverse Points L2A WGS SV048.pdf |
| Run Field Data Sheets (raw data sheets for field sampling) | 26A FDS 1-3 Coal Gas.pdf |
| Run Field Data Sheets (raw data sheets for field sampling) | 26A FDS 1-3 Nat Gas.pdf |
| Run Field Data Sheets (raw data sheets for field sampling) | Metals FDS 1-3 Coal Gas.pdf |

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|----------------------------------------------------------------------|-----------------------------------------------------------------|
| Run Field Data Sheets (raw data sheets for field sampling) | Metals FDS 1-3 Nat Gas.pdf |
| Moisture Recovery | Impinger weights M29, M26.pdf |
| Lab Data (raw data sheets for field and laboratory analysis) | 38406 REV Final Report e-mail 4-28-2022 |
| Lab Data (raw data sheets for field and laboratory analysis) | Enthalpy 26A Revised 0322-158R2.pdf |
| Lab Data (raw data sheets for field and laboratory analysis) | Lab Report 23691780.16 UTAC 2A WG M 2022.pdf |
| Lab Data (raw data sheets for field and laboratory analysis) | 26A lab summary Coal-Gas.pdf |
| Lab Data (raw data sheets for field and laboratory analysis) | 26A lab summary Nat-Gas.pdf |
| Lab Data (raw data sheets for field and laboratory analysis) | PM lab summ - Coal-Gas.pdf |
| Lab Data (raw data sheets for field and laboratory analysis) | PM lab summ - Nat Gas.pdf |
| Lab Data (raw data sheets for field and laboratory analysis) | Gas Metals Lab Summary.pdf |
| Lab Data (raw data sheets for field and laboratory analysis) | Gas-Coal Metals Lab Summary.pdf |
| Lab Data (raw data sheets for field and laboratory analysis) | _email4_38309 Barr Engineering M29 Re Rev. 07.06.22.pdf |
| Chain-of-Custody | M26A COC.pdf |
| Chain-of-Custody | M29 COC.pdf |
| Chain-of-Custody | M5 COC.pdf |
| Laboratory Accreditation Certification | Element One - LA_NELAP_Certificate_Parameter_List_E 2.pdf |
| Laboratory Accreditation Certification | Element One - NJ_NELAP_Certificate_u0026_Paramet _30_22__2_.pdf |
| Laboratory Accreditation Certification | Enthalpy - Durham_Louisiana-DEQ-NELA 063022.pdf |
| Laboratory Accreditation Certification | Enthalpy - Durham_New-Jersey-DEP-NE 063022-1.pdf |
| Laboratory Accreditation Certification | Barr - Gravimetrics.pdf |
| Laboratory Accreditation Certification | Element One - SOP-201 Method 29 and C 1.9.pdf |
| Laboratory Accreditation Certification | Enthalpy - SOP-312_R15 EPA Methods 2 |
| Interference/Response Time/Converter Efficiency/Stratification Tests | Stratification Test.pdf |
| Process and APCD Monitor Calibrations | process data.4.22.22 FORMATTED V2.pdf |

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| Calibration Gas Certificates (Item 16) | CO 23.1 EB0097780.20190404.PDF |
| Calibration Gas Certificates (Item 16) | CO 49.8 CC88819 Exp 07-22-2024.pdf |
| Calibration Gas Certificates (Item 16) | CO2 O2 9.46 9.50 EB0098604 Exp 10-21- |
| Calibration Gas Certificates (Item 16) | EB0097775.20190305.PDF |
| Calibration Gas Certificates (Item 16) | EB0098643.20181016.pdf |
| Stratification Test | Strat check.pdf |
| Example calculations for reported results | 26A calculations Coal-Gas.pdf |
| Example calculations for reported results | 26A calculations Nat Gas.pdf |
| Example calculations for reported results | 26A Iso calcs Coal-Gas.pdf |
| Example calculations for reported results | 26A Iso calcs Nat Gas.pdf |
| Example calculations for reported results | Analyzer calcs- all.pdf |
| Example calculations for reported results | PM Calculations - Nat Gas.pdf |
| Example calculations for reported results | PM Calculations -Coal-Gas.pdf |
| Example calculations for reported results | Gas Metals Calculations REPRINT.pdf |
| Example calculations for reported results | Gas Metals Lab Summary REPRINT.pdf |
| Example calculations for reported results | Gas-Coal MEtals Calculations REPRINT.p |
| Example calculations for reported results | Gas-Coal Metals Lab Summary REPRINT. |
| Single Stack Justification | EPA request.2A.flows.Pm results_final.p |
| Stack 2B Flow Measurement | Test Ports L2B WGS SV049.pdf |
| Stack 2B Flow Measurement | Traverse Points L2B WGS SV049.pdf |
| Stack 2B Flow Measurement | 2B Airflwo Calcs.pdf |
| Stack 2B Flow Measurement | 2B Airflow DS.pdf |
| Stack 2B Flow Measurement | Table 9.pdf |

Completeness Questions:

| Completeness Quality Assessment Questions | | |
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| As described in ASTM D7036-12 Standard Practice for Competence of Air Emission Testing Bodies, does the testing firm meet the criteria as an AETB or is the person in charge of the field team a QI for the type of testing conducted? A certificate from an independent organization (e.g., Stack Testing Accreditation council (STAC), California Air Resources Board (CARB), National Environmental Laboratory Accreditation Program (NELAP) or self declaration provides documentation of competence | No | AETB certification is not required testing. |

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| as an AETB. | | |
| Is a description and drawing of test location provided? | Yes | |
| Has a description of deviations from published test methods been provided, or is there a statement that deviations were not required to obtain data representative of typical facility operation? | Yes | |
| Is a full description of the process and the unit being tested (including installed controls) provided? | Yes | |
| Has a detailed discussion of source operating conditions, air pollution control device operations and the representativeness of measurements made during the test been provided? | Yes | |
| Were the operating parameters for the tested process unit and associated controls described and reported? | No | Process data is associated with ea applicable. See process data com appropriate method. |
| Is there an assessment of the validity, representativeness, achievement of DQO's and usability of the data? | Yes | |
| Have field notes addressing issues that may influence data quality been provided? | No | No field notes provided. |
| Have the following been included in the report: Dry Gas Meter (DGM) calibrations, pitot tuve and nozzle inspections? | Yes | |
| Was the Method 1 sample point evaluation included in the report? | Yes | |
| Were the cyclonic flow checks included in the report? | Yes | |
| Were the raw sampling data and test sheets included in the report? | Yes | |
| Did the report include a description and flow diagram of the recovery procedures? | Yes | |
| Was the laboratory certied/accredited to perform these analyses? | Yes | |
| Did the report include a complete laboratory report and flow diagram of sample analysis? | Yes | |
| Were the chain-of-custody forms included in the report? | Yes | |
| Did the report include a complete description of the instrumental method sampling system? | Yes | |
| Did the report include calibration gas certifications? | Yes | |
| Did the report include interference tests? | Yes | |
| Were the response time tests included in the report? | Yes | |

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| Were the calibration error tests included in the report? | Yes | |
| Did the report include drift tests? | Yes | |
| Did the report include system bias tests? | Yes | |
| Were the converter efficiency tests included in the report? | Yes | NOx testing not performed. No co required. |
| Did the report include statification checks? | Yes | |
| Did the report include the raw data for the instrumental method? | Yes | |

Regulatory Review Questions:

| Regulatory Review Quality Assessment Questions | | |
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| As described in ASTM D7036-12 Standard Practice for Competence of Air Emission Testing Bodies, does the testing firm meet the criteria as an AETB or is the person in charge of the field team a QI for the type of testing conducted? A certificate from an independent organization (e.g., STAC, CARB, NELAP) or self declaration provides documentation of competence as an AETB. | | |
| Was a representative of the regulatory agency on site during the test? | | |
| Is a description and drawing of test location provided? | | |
| Is there documentation that the source or the test company sought and obtained approval for deviations from the published test method prior to conducting the test or that the tester's assertion that deviations were not required to obtain data representative of operations that are typical for the facility? | | |
| Were all test method deviations acceptable? | | |
| Is a full description of the process and the unit being tested (including installed controls) provided? | | |
| Has a detailed discussion of source operating conditions, air pollution control device operations and the representativeness of measurements made during the test been provided? | | |
| Is there documentation that the required process monitors have been calibrated and that the calibration is acceptable? | | |
| Was the process capacity documented? | | |
| Was the process operating within an appropriate range for the test program objective? | | |
| Were process data concurrent with testing? | | |
| Were data included in the report for all parameters for which limits will be set? | | |

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| Did the report discuss the representativeness of the facility operations, control device operation, and the measurements of the target pollutants, and were any changes from published test methods or process and control device monitoring protocols identified? | | |
| Were all sampling issues handled such that data quality was not adversely affected? | | |
| Was the DGM pre-test calibration within the criteria specified by the test method? | | |
| Was the DGM post-test calibration within the criteria specified by the test method? | | |
| Were thermocouple calibrations within method criteria? | | |
| Was the pitot tube inspection acceptable? | | |
| Were nozzle inspections acceptable? | | |
| Were flow meter calibrations acceptable? | | |
| Were the appropriate number and location of sampling points used? | | |
| Did the cyclonic flow evaluation show the presence of an acceptable average gas flow angle? | | |
| Were all data required by the method recorded? | | |
| Were required leak checks performed and did the checks meet method requirements? | | |
| Was the required minimum sample volume collected? | | |
| Did probe, filter, and impinger exit temperatures meet method criteria (as applicable)? | | |
| Did isokinetic sampling rates meet method criteria? | | |
| Was the sampling time at each point greater than 2 minutes and the same for each point? | | |
| Was the recovery process consistent with the method? | | |
| Were all required blanks collected in the field? | | |
| Where performed, were blank corrections handled per method requirements? | | |
| Were sample volumes clearly marked on the jar or measured and recorded? | | |
| Was the laboratory certified/accredited to perform these analyses? | | |
| Did the laboratory note the sample volume upon receipt? | | |
| If sample loss occurred, was the compensation method used, documented, and approved for the method? | | |
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| Were the physical characteristics of the samples (e.g., color, volume, integrity, pH, temperature) recorded and consistent with the method? | | |
| Were sample hold times within method requirements? | | |
| Does the laboratory report document the analytical procedures and techniques? | | |
| Were all laboratory QA requirements documented? | | |
| Were analytical standards required by the method documented? | | |
| Were required laboratory duplicates within acceptable limits? | | |
| Were required spike recoveries within method requirements? | | |
| Were method-specific analytical blanks analyzed? | | |
| If problems occurred during analysis, is there sufficient documentation to conclude that the problems did not adversely affect the sample results? | | |
| Was the analytical detection limit specified in the test report? | | |
| Is the reported detection limit adequate for the purposes of the test program? | | |
| Do the chain-of-custody forms indicate acceptable management of collected samples between collection and analysis? | | |
| Was a complete description of the sampling system provided? | | |
| Were calibration standards used prior to the end of the expiration date? | | |
| Did calibration standards meet method criteria? | | |
| Did interference checks meet method requirements? | | |
| Was a response time test performed? | | |
| Did calibration error tests meet method requirements? | | |
| Were drift tests performed after each run and did they meet method requirements? | | |
| Did system bias checks meet method requirements? | | |
| Was the NOX converter test acceptable? | | |
| Was a stratification assessment performed? | | |
| Was the duration of each sample run within method criteria? | | |
| Was the appropriate traverse performed during sample collection, or was the probe placed at an appropriate center point (if allowed by the method)? | | |
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| Were sample times at each point uniform and did they meet method requirements? | | |
| Were sample lines heated sufficiently to prevent potential adverse data quality issues? | | |
| Was all data required by the method recorded? | | |

Tester's DQ Assement:

| Comment |
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| <p>The results for phosphorus are corrected for the full amount reported in the corresponding sample blanks contamination confirmed by subsequent sample media analysis. The front half blank contained 137 µg, with correction. Subsequent analysis of two additional filters from the same lot confirmed the presence of phosphorus (162 and 159 µg/filter, respectively). The back half 5% nitric acid and 10% hydrogen peroxide reagent blank contained 18.4 total µg, which is used for the blank correction. Subsequent analysis of a second reagent made using the same stock solution confirmed the presence of phosphorus at a similar level (18.4 total µg). As a result, Cliffs conservatively corrected for 137 µg in the front half blank and 17.6 µg in the back half reagent blank.</p> <p>Filterable and Total Antimony reported test values are potentially biased higher than actual concentration due to antimony contamination in the Lab Reagent Blank, see analytical narrative of ElementOne report 38</p> |

